

Curriculum Vitae - Carol A. Stepien, Ph.D.
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NOAA Pacific Marine Environmental Laboratory
Ocean Environmental Research Division Leader
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EDUCATION

- Postdoctoral** **National Research Council Research Associate, National Marine Fisheries, NOAA.**
Conservation population genetics and ecology, stock structure of commercial fisheries
Alfred Sloan Foundation Fellow in Molecular Evolution, The University of Texas, Austin.
1988-90. Molecular evolution, systematics, and biogeography of fishes
National Science Foundation Fellow and P.I., Scripps Institution of Oceanography,
University of California, San Diego, 1986-1988. *Population genetics, molecular*
ecology, and biogeography of kelp forest fishes
- Ph. D.** **University of Southern California.** Department of Biological Sciences. Ecology and
Evolutionary (Marine) Biology. *Dissertation: Genetic versus environmental regulation of*
colormorphic patterns in kelpfishes
- M. S.** **University of Southern California.** Department of Biological Sciences. Ecology and
Evolutionary Biology. *Thesis: Ecological distribution of nearshore fish larvae*
- B. S.** **Bowling Green University, Ohio.** *magna cum laude.* Biology major, Chemistry and English
minors. Summer courses and research at the Gulf Coast Research Lab.
Senior Honors Research Project: Neurobiology of fish bioluminescence

EMPLOYMENT

- 2016-present** **Ocean Environmental Research Division Leader, NOAA PMEL** (Pacific Environmental
Research Laboratory)
- 2011-present** **Distinguished University Professor of Ecology (one of just 18 Distinguished Professorships**
across the University) and tenured full Professor, Department of Environmental
Sciences, University of Toledo, Toledo, OH (on leave of absence for above)
- 2004-2016** **Director of the Lake Erie Center and tenured Full Professor of Ecology, University of**
Toledo (concurrent with above; resigned directorship on July 31, 2016 to relocate to new
promotional position, at NOAA PMEL to begin October 17, 2016)
- *Lead, develop, innovate, coordinate, and disseminate multidisciplinary and multi-institutional research, education, and outreach programs and projects on environmental challenges*
 - *Work with and coordinate the Lake Erie Center's (LEC) advisory boards, professors, and staff to advance mission to understand and improve environmental sustainability in collaboration with federal (USGS, USEPA, NOAA, USDA, USFWS) and state agencies*
 - *Conduct and supervise original research on conservation – genetics, genomics, ecology, and evolutionary patterns – as P.I. on extramural grants (~\$10.7 million as lead P.I. since 2004),*
 - *Communicate research findings and education issues to inform the Great Lakes community, the U.S. Congress, and State governments*
 - *Lead P.I. for NSF \$2.7 million “Graduate fellows in High School STEM Education: An Environmental Science Learning Community at the Land-Lake Ecosystem Interface” 2008-15*
 - *Lead PI for NSF REU summer research program for undergraduates 2015-2018*
 - *Lead PI for NSF “Environmental Sensor Network” - the world's first on a large lake*
 - *Implemented ongoing LEC monthly public lecture series; annual photo & nature art contests*
 - *Outstanding organization award from the Lake Erie Commission*
 - *Head the Great Lakes Genetics/Genomics Lab, supervising postdoctoral researchers, Ph.D. and M.S. graduate students, undergraduate research students, and technicians*
 - *Editorial board of research journal Molecular Phylogenetics and Systematics.*

Highlights at the University of Toledo, Continued (2004-2016)

- *Genetics Editor for Biological Invasions and for Journal of Great Lakes Research*
 - *University of Toledo's Outstanding Researcher Award*
 - *Distinguished University Professor Appointment 2012-present*
 - *Sigma Xi Scientific Research Society Outstanding Researcher 2010, President 2013-2015*
- 2000-2014** **Research Associate Professor, Director of the Genetics Laboratory & Program Manager in Environmental Risk Analysis (Concurrent). Center for Environmental Science, Technology & Policy (concurrent graduate faculty appointments in Department of Biological, Geological & Environmental Sciences & the Chemistry Department Cleveland State University**
- *Grant writing, planning, coordination, and management (including multi-disciplinary and multi-institutional); \$1.5 million awarded in grants as P.I.*
 - *Managed productive \$2 million USEPA multi-institutional USEPA Environmental Risk Analysis Program (10 faculty- Environmental Engineering, Economics, Biology, Chemistry)*
 - *Environmental research: In charge of research conferences, seminars, symposia*
 - *Ran environmental ecological genetics laboratory, supervising and supporting full-time research technicians, Ph.D. students, M.S. students, and undergraduate researchers*
 - *P.I. of grants from NSF, NOAA, US Fish and Wildlife Service & Great Lakes Fishery Commission. Co-P.I. of NSF Research Experiences for Undergraduates (REU) program*
 - *Scientific advisory board DNA Analysis Facility; genomics, bioinformatics, proteomics*
 - *Graduate and undergraduate teaching: evolution, genetics, environmental sciences*
 - *Editorial board of Molecular Phylogenetics and Systematics*
 - *Genetics Editor for Journal of Great Lakes Research, 2 Editor's awards*
- 1995-2000** **Assistant Professor, Department of Biology, Case Western Reserve University**
- *Established productive laboratory, ranked top 10% in extramural funding in department*
 - *Published book, rated highly in Nature and 12 research papers*
 - *Brought Case into the Great Lakes Aquatic Ecosystem Research Consortium and served as the institutional representative for faculty from Engineering, Geology, and Biology*
 - *Graduated Ph.D. student and 3 M.S. students - all published (with Stepien), gave professional presentations, and are employed in biology*
 - *Sponsored 17 undergraduate research projects - publications, awards, and presentations*
 - *Taught graduate and undergraduate courses in environmental sciences, biotechnology, ecology, evolution, population biology, and biogeography*
 - *Organized environmental/ evolutionary symposia, seminars, and conferences*
 - *Environmental Achievement award from Case for research, teaching, and mentorship*
- 1992-1995** **George B. Mayer Chair in Urban and Environmental Studies, Department of Biology, Case Western Reserve University. Rotating 3-year endowed research chair.**
- 1991-1992** **National Research Council Research Associate, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, La Jolla, California.**
Comparative population genetics of commercial continental slope fisheries.
- 1988-1990** **Sloan Foundation Postdoctoral Research Fellow in Molecular Evolutionary Biology, The University of Texas at Austin. Sponsor: Dr. David M. Hillis.**
Molecular evolution and systematics of blennioid fish families from nuclear DNA.
- 1986-1988** **National Science Foundation Postdoctoral Researcher and Principal Investigator, Scripps Institution of Oceanography, University of California, San Diego.**
Sponsor: Dr. Richard H. Rosenblatt. *Population genetics, biogeography, and systematic relationships of clinid fishes from molecular and morphological data.*
- 1984-1986** **Visiting Instructor of Biology and Marine Studies (sabbatical replacement), University of San Diego. Teaching, research, research sponsor.**
- 1985-1986** **Research Associate, Hubbs Marine Research Center, San Diego. Fish ecology.**

- 1983-1984** Lecturer, California State University, Dominguez Hills, Department of Biology.
- 1981-1982** Graduate Research Assistant, NOAA Sea Grant, University of Southern California. *Populations, systematics, and ecology of nearshore fish larvae.* Resident field and SCUBA diving research at Wrigley Marine Science Center on Santa Catalina Island.
- 1980-1984** Laboratory Instructor and Teaching Assistant, University of Southern California. *General Biology, Physiology, Marine Biology, Ichthyology, Invertebrate Zoology.*

RESEARCH: Molecular Ecology, Population Genetics, Evolutionary Patterns, Genomics

- 1. Molecular ecology, evolution, adaptedness, and population genetic/genomic patterns of marine and aquatic organisms.** *Projects: Co-evolution of VHS fish virus and fish host responses. Genetic stock structure of fishes. Interfacing and collaborations with the U.S. Aquatic Nuisance Species Task Force, federal, state, and provincial agencies, and research labs in the U.S., Canada, and Europe/Eurasia.*
- 2. Environmental genetics, genomics, biogeography, and systematics.** *Tests of ecological, distributional, and adaptation hypotheses using genetics, genomics, and bioinformatics. Projects: Development of rapid molecular screening test for VHS fish virus, with internal controls. Environmental DNA identification, quantification, and adaptive responses of invasive species using eDNA and Next Generation Sequencing.*
- 3. Temporal and spatial evolutionary dynamics of invasive, exploited, and/or environmentally sensitive populations.** *Population changes over time and space of invasive and native species. Collaborating with U.S. and Canadian federal and state/provincial fisheries and environmental agencies to institute DNA methods for assessing population structure and genetic/genomic changes with climate and habitat.*

Great Lakes Genetics/Genomics Lab Website: <http://www.utoledo.edu/nsm/lec/research/glg/index.html>

PUBLICATIONS, In Reverse Order (N=95 to date; other New manuscripts are on p. 9)

* = students, technicians, and post-docs directly supervised by Stepien

** = Stepien as corresponding author & lead P.I.; H-Index=33, i10-Index=59

Research Gate (top 96%): https://www.researchgate.net/profile/Carol_Stepien

Google Scholar: <http://scholar.google.com/citations?user=CJrTt3kAAAAJ&hl=en>; 2987 citations

- 95.** Haponski, A.E.* & C.A. Stepien**. **2016.** Two decades of genetic consistency in a reproductive population in the face of exploitation: Patterns of adult and larval walleye (*Sander vitreus*) from Lake Erie's Maumee River. *Conservation Genetics*. DOI 10.1007/s10592-016-0866-x
- 94.** Kvach, Y, Y. Kutsoken, C.A. Stepien, M. Markovyck. **2016.** Role of the invasive Chinese sleeper *Percottus glenii* Cybawi 1877 (Actinopterygii: Odeontobutidae) in the distribution of fish parasites in Europe: new data and a review. *Biologia*. In Press.
- 93.** Stepien, C.A.**, F. Calzonetti, J.M. Bossenbroek, K.P. Czajkowski, T.L. Bollin & C.L. Gruden. **2016.** Enhancing environmental sustainability through a university field station. In: A. Kumar and D. Kim (eds). *Sustainability Practice and Education on University Campuses and Beyond*. Bentham Science Publishers. In Press. <https://www.utoledo.edu/nsm/lec/research/glg/publications/LECbookchapter.pdf>
- 92.** Stepien, C.A.**, L.R. Pierce*, D. Leaman, M. Niner*, B. Shepherd. **2015.** Gene diversification of an emerging pathogen: A decade of mutation in a novel fish Viral Hemorrhagic Septicemia (VHS) substrain since its first appearance in the Laurentian Great Lakes". *PLoS One (Public Library of Science)*. DOI: 10.1371/journal.pone.0135146. https://www.utoledo.edu/nsm/lec/research/glg/publications/Stepienetal.2015_VHS_Evo_PLOS_One.pdf
- 91.** Shao, C, J. Chen, C.A. Stepien, H. Chu, Z. Ouayang, T.B. Bridgeman, K.P. Czajkowski, R.H. Becker, & R. John. **2015.** Diurnal to annual changes in latent, sensible heat, and CO2 fluxes over a Laurentian Great Lake: A case study in western Lake Erie. *Journal of Geophysical Research – Biogeosciences*. 120(8):1587-1604. DOI:10.1002/2015JG003025 **Selected as AGU Research Spotlight:** <https://eos.org/research-spotlights/great-lakes-hold-sway-over-water-and-carbon-cycling>
- 90.** Stepien, C.A.**, J. Behrmann-Godel & L. Bernatchez. **2015.** Evolutionary relationships, population genetics, and ecological and genomic adaptations of perch (*Perca*) Ch. 2, pp. 7-46. In: Couture, P. & G. Pyle. (Eds.). *Biology of Perch*. CRC Press. ISBN 978-1-4987-3032-7. <https://www.utoledo.edu/nsm/lec/research/glg/publications/Stepienetal2015PerchEvol.pdf>

**PUBLICATIONS, Continued (* = students, postdocs, and techs sponsored by Carol A. Stepien)
(**=Stepien as corresponding author and lead P.I.)**

89. Stepien, C.A.** & A.E. Haponski* 2015. Taxonomy, distribution, and evolution of percid fishes. Chapter 1, pp. 3-60 In: *Biology and Culture of Percid Fishes-Principles and Practices*. Kestlemont, P. , K. Dabrowski & R.C. Summerfelt (Eds.). Springer. ISBN 978-94-917-7227-3, doi 10.1007978-94-017-7227-3. http://www.utoledo.edu/nsm/lec/research/glg/publications/StepienHaponski2015_PercidCh1.pdf
88. Stepien, C.A.** , O.J. Sepulveda-Villet* & A.E. Haponski*. 2015. Comparative genetic diversity, population structure, and adaptations of walleye and yellow perch across North America. Chapter 25, pp. 643-690 In: *Biology and Culture of Percid Fishes-Principles and Practices*. Kestlemont, P. , K. Dabrowski & R.C. Summerfelt (Eds.). Springer. ISBN 978-94-917-7227-3, doi 10.1007978-94-017-7227-3. http://www.utoledo.edu/nsm/lec/research/glg/publications/StepienEtAl2015_PercidCh25.pdf
87. Kvach, Y., V. Boldyrev, R. Lohner & C. A. Stepien. 2015. The parasite community of gobiid fishes (Actinopterygii: Gobiidae) from the Lower Volga River region. *Biologia (Section Zoology)*, 70(7): 948–957. DOI: 10.1515/biolog-2015-0108. <http://www.utoledo.edu/nsm/lec/research/glg/publications/Kvachetal2015gobypar.pdf>
86. Sullivan, T.J.* and C.A. Stepien.** 2015. Temporal population genetic structure of yellow perch spawning groups in the lower Great Lakes. *Transactions of American Fisheries Society*. 144:211–226. DOI: 10.1080/00028487.2014.982260 http://www.utoledo.edu/nsm/lec/research/glg/publications/SullivanStepien2015_YP_TAFS.pdf
85. Roseman, E.F., P.A. Thompson, J. M. Farrell, N. E. Mandrak & C. A. Stepien. 2014. Great Lakes connecting channels. Special Issue. *Journal of Great Lakes Research*. 40 (2014): 1–6. doi:10.1016/j.jglr.2014.03.003 http://www.utoledo.edu/nsm/lec/research/glg/publications/Rosemanetal_HECintro_JGLR_2014.pdf
84. Haponski, A.E.* & C.A. Stepien.** 2014. A population genetic window into the past and future of the walleye *Sander vitreus*: Relation to historic walleye and the extinct blue pike variant. *BMC Evolutionary Biology*. 2014, 14:133. <http://www.biomedcentral.com/1471-2148/14/133>
83. Haponski, A.E.*, H. Dean*, B. Blake* & C.A. Stepien**. 2014. Genetic history of walleye (*Sander vitreus*) spawning in Lake Erie’s Cattaraugus Creek: A comparison of pre- and post-stocking. *Transactions of the American Fisheries Society*. 143:1295–1307 DOI: 10.1080/00028487.2014.935477 http://www.utoledo.edu/nsm/lec/research/glg/publications/Haponski_et_al2014_WA_TAFS.pdf
82. Sullivan, T.J.* & C.A. Stepien.** 2014. Genetic diversity and divergence of yellow perch (*Perca flavescens*) spawning populations across the Huron-Erie Corridor, from Lake Huron through western Lake Erie. *J. of Great Lakes Research*. 40(2014): 101-109. doi:10.1016/j.jglr.2012.12.004 http://www.utoledo.edu/nsm/lec/research/glg/publications/SullivanStepien2014_HECYP_JGLR.pdf
81. Haponski, A.E.* & C.A. Stepien.** 2014. Genetic connectivity and diversity of walleye (*Sander vitreus*) spawning groups in the Huron-Erie Corridor. *J. of Great Lakes Research*. 49(2014) 89-100. <http://dx.doi.org/10.1016/j.jglr.2012.12.006> <http://www.sciencedirect.com/science/article/pii/S0380133012002407>
80. Stepien, C.A.** , I.A. Grigorovich, M.A. Gray*, T.J. Sullivan*, S. Yerga-Woolwine* & G. Kalacyi*. 2013. Evolutionary, biogeographic, and population genetic relationships of Dreissenid mussels, with revision of component taxa. Chapter 26 in: Nalepa, T. & D. Schloesser. *Quagga and Zebra Mussels: Biology, Impacts, and Control, 2nd Edition*. CRC Press, Boca Raton, FL, pp. 403-444. <http://www.utoledo.edu/nsm/lec/research/glg/publications/Stepien%20et%20al%202013-Dreissenid%20ch.pdf>
79. Pierce, L.R.* , J.C. Willey, E.L. Crawford*, D.W. Leaman, V.V. Palsule*, M. Faisal, R.K. Kim, B.S. Shepherd & C.A. Stepien.** 2013. A new StaRT-PCR approach to detect and quantify fish Viral Hemorrhagic Septicemia virus (VHSv): Enhanced quality control with internal standards. *J. of Virological Methods*. 189:129-142. http://www.utoledo.edu/nsm/lec/research/pdfs/Pierce_et_al_2013_JVM.pdf
78. Kocovsky, P., T.J. Sullivan*, C. Knight & C.A. Stepien. 2013. Genetic and morphometric differences demonstrate fine-scale population substructure of the yellow perch *Perca flavescens*: Need for redefined management units. *Journal of Fish Biology*. 82(6): 2015-2030. doi:10.1111/jfb.12129 <http://onlinelibrary.wiley.com/doi/10.1111/jfb.12129/pdf>
77. Haponski, A.E.* & C.A. Stepien.** 2013. Phylogenetic and biogeographical relationships of the *Sander* pikeperches (Perciformes: Percidae): Patterns across North America and Eurasia. *Biological J. Linnean Society*. 110(1): 156-179. <http://onlinelibrary.wiley.com/doi/10.1111/bij.12114/pdf>
76. Pierce, L.R.* , J.C. Willey, E.L. Crawford*, V.V. Palsule*, B.S. Shepherd & C.A. Stepien**. 2013. Accurate detection and quantification of the fish Viral Hemorrhagic Septicemia virus (VHSv) with a two-color fluorometric real-time PCR assay. *PLoS One*. 8(8): e71851. doi:10.1371/journal.pone.0071851 <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0071851>

**PUBLICATIONS, Continued (* = students, postdocs, and techs sponsored by Carol A. Stepien)
(**=Stepien as corresponding author and lead P.I.)**

75. Stepien, C.A.** & M.E. Neilson*. 2013. What's in a Name? Taxonomy and nomenclature of invasive gobies in the Great Lakes and beyond. *Journal of Great Lakes Research*. 39(4):555-559.
<http://dx.doi.org/10.1016/j.jglr.2013.09.020>
74. Stepien, C.A.** , J.A. Banda*, D.M. Murphy* & A.E. Haponski*. 2012. Temporal and spatial genetic consistency of walleye (*Sander vitreus*) spawning groups. *Transactions of the American Fisheries Society*. 141:660-672. doi:10.1080/00028487.2012.683474
http://www.utoledo.edu/nsm/lec/pdfs/Stepien_et_al_2012_TAFS_walleye_Lake_Erie.pdf
73. Karsiotis, S.I.* , J.E. Brown* , L.R. Pierce* & C.A. Stepien.** 2012. Salinity tolerance of the invasive round goby: experimental implications for seawater ballast exchange and spread to North American estuaries. *Journal of Great Lakes Research*. 38:121-128. doi:10.1016/j.jglr.2011.12.010
http://www.utoledo.edu/nsm/lec/pdfs/karsiotis_2012.pdf
72. Pierce, L.R.* & C.A. Stepien.** 2012. Evolution and biogeography of an emerging quasispecies: Diversity patterns of the fish viral hemorrhagic septicemia virus (VHSV). *Molecular Phylogenetics and Evolution*. 63:327-341. doi:10.1016/j.ympev.2011.12.024 http://www.utoledo.edu/nsm/lec/research/glg/publications/Pierce_and_Stepien_MPE_2012_published.pdf
71. Sepulveda-Villet, O.J.* & C.A. Stepien.** 2012. Waterscape genetics of the yellow perch (*Perca flavescens*): Patterns across large connected ecosystems and isolated relict populations. *Molecular Ecology*. 21(23): 5795-2826. doi:10.1111/mec.12044 https://www.utoledo.edu/nsm/lec/research/pdfs/10.1111_mec.12044.pdf
70. Kocovsky, P.M., J.A. Tallman, D.J. Jude, D.M. Murphy*, J.E. Brown* & C. A. Stepien. 2011. Expansion of tubenose gobies *Proterorhinus semilunaris* into western Lake Erie and potential effects on native species. *Biological Invasions*. 13(12): 2775-2784. doi: 10.1007/s10530-011-9962-5
<http://www.utoledo.edu/nsm/lec/research/glg/publications/Kocovsky-2011.pdf>
69. Neilson, M.E.* & C.A. Stepien.** 2011. Historic cryptic speciation and recent colonization of Eurasian monkey gobies (*Neogobius fluviatilis* and *N. pallasii*) revealed by DNA sequences, microsatellites, and morphology. *Diversity and Distributions*. 17:688-702. doi:10.1111/j.1472-4642.2011.00762.x
http://www.utoledo.edu/nsm/lec/pdfs/Neilson_Stepien_2011_Diversity_Distri_Monkey_goby.pdf
68. Feldheim, K.A., J.E. Brown*, D.M. Murphy* & C.A. Stepien**. 2011. Microsatellite loci for dreissenid mussels (Mollusca: Bivalvia) and relatives: Markers for assessing invasive and native species. *Molecular Ecology Resources*. 11:725-732. doi: 10.1111/j.1755-0998.2011.03012.x
<http://www.utoledo.edu/nsm/lec/research/glg/publications/Feldheimetal2011dreissenid.pdf>
67. Sepulveda-Villet, O.J.* & C.A. Stepien**. 2011. Fine-scale population genetic structure of the yellow perch *Perca flavescens* in Lake Erie. *Canadian Journal of Fisheries and Aquatic Sciences*. 68:1-19. doi:10.1139/F2011-077 <http://www.utoledo.edu/nsm/lec/research/glg/publications/sepulveda-villet-2011.pdf>
66. Grzybowski, M., O.J. Sepulveda-Villet*, C.A. Stepien, D. Rosauer, F. Binkowski, R. Klaper, B. Shepherd, and F. Goetz. 2010. Genetic variation of 17 wild yellow perch populations from the Midwest and East coastal United States using microsatellites. *Transactions of the American Fisheries Society*. 139:270-287. doi: 10.1577/T07-276.1 http://www.utoledo.edu/nsm/lec/pdfs/Published_TAFS_perch_paper.pdf
65. Stepien, C.A.** , D.M. Murphy* , R.L. Lohner* , O.J. Sepulveda-Villet* & A.E. Haponski*. 2010. Status and delineation of walleye genetic stocks across the Great Lakes. In: Status of Walleye in the Great Lakes. *Great Lakes Fishery Technical Report* 69:197-223. Great Lakes Fishery Commission, Ann Arbor, MI http://www.utoledo.edu/nsm/lec/pdfs/Stepien_et_al_2010_walleyeGrea.pdf (peer-reviewed)
64. Brown, J.E.* & C.A. Stepien.** 2010. Population genetic history of the dreissenid mussel invasion: Expansion patterns across North America. *Biological Invasions*. 12(11): 3687-3710. doi: 10.1007/s10530-010-9763-2 http://www.utoledo.edu/nsm/lec/pdfs/Brown%26Stepien_2010_Dreissenid_.pdf
63. Stepien, C.A.** & A.E. Haponski*. 2010. Systematics of the greenside darter *Etheostoma blennioides* complex: Consensus from nuclear and mitochondrial DNA sequences. *Molecular Phylogenetics and Evolution*. 57:434-447. doi: 10.1016/j.ympev.2010.06.017
http://www.utoledo.edu/nsm/lec/research/glg/reprints/Stepien%26Haponski_2010_greensid.pdf
62. Stepien, C.A.** , D.J. Murphy* , R.N. Lohner* , O.J. Sepulveda-Villet* & A.E. Haponski*. 2009. Signatures of vicariance, postglacial dispersal, and spawning philopatry: Population genetics and biogeography of the walleye *Sander vitreus*. *Molecular Ecology*. 18: 3411-3428. doi: 10.1111/j.1365-294X.2009.04291.x http://www.utoledo.edu/nsm/lec/pdfs/Stepien_et_al_2009.pdf

PUBLICATIONS, Continued (* = students, postdocs, and techs sponsored by Carol A. Stepien)
(=Stepien as corresponding author and lead P.I.)**

61. Haponski, A.E.* , T.L. Bollin*, M.A. Jedicka* & C.A. Stepien.** 2009. Landscape genetic patterns of the rainbow darter: A catchment analysis of mitochondrial DNA sequences and nuclear microsatellites. *Journal of Fish Biology*. 75:2244-2268. doi: 10.1111/j.10958649.2009.02414.x
http://www.utoledo.edu/nsm/lec/pdfs/Haponski_2010.pdf
60. Feldheim, K., P. Willink, J.E. Brown*, D.J. Murphy*, M.E. Neilson* & C.A. Stepien.** 2009. Microsatellite loci for Ponto-Caspian gobies: Markers for assessing exotic invasions. *Molecular Ecology Resources*. 9(2):639-644. doi:10.1111/j.1755-1098.2008.0495
http://www.utoledo.edu/nsm/lec/research/glg/reprints/Feldheim_et_al_2009-MEC.pdf
59. Brown, J.E.* & C.A. Stepien.** 2009. Invasion genetics of the round goby: Tracing Eurasian source populations to the New World. *Molecular Ecology*. 18: 64-79. doi: 10.1111/j.1365-294X.2008.04014.x
http://www.utoledo.edu/nsm/lec/pdfs/Brown_and_Stepien_2009.pdf
58. Neilson, M.E.* & C.A. Stepien.** 2009. Evolution and phylogeography of the tubenose goby genus *Proterorhinus* (Gobiidae: Teleostei): Evidence for new cryptic species. *Journal of the Linnean Society*. 96(3): 664-684. doi:10.1111/j.1095-8312.2008.01135.x http://www.utoledo.edu/nsm/lec/pdfs/goby/Neilson_and_Stepien_2009a.pdf
57. Sepulveda-Villet, O.J.* , A.M. Ford*, J.D. Williams & C.A. Stepien.** 2009. Population genetic diversity and phylogeographic divergence patterns of yellow perch (*Perca flavescens*). *Journal of Great Lakes Research*. 35(2): 107-119. doi:10.1016/j.jglr.2008.11.009
http://www.utoledo.edu/nsm/lec/pdfs/fishery/Sepulveda-Villet_et_al.,_2009.pdf
56. Neilson, M.E.* & C.A. Stepien.** 2009. Escape from the Ponto-Caspian: Evolution and biogeography of the neogobiin species flock (Gobiidae: Teleostei). *Molecular Phylogenetics and Evolution*. 52: 84-102. doi:10.1016/j.ympev.2008.12.023 http://www.utoledo.edu/nsm/lec/pdfs/neilson_stepien_2009b.pdf
55. Parker, A.D., C.A. Stepien, O.J. Sepulveda-Villet*, C.B. Ruehl & D.J. Uzarski. 2009. The interplay of morphology, ecological habitat, resource use, and population genetics in young yellow perch. *Transactions of the American Fisheries Society* 138: 899-914. doi: 10.1577/T08-093.1
http://www.utoledo.edu/nsm/lec/pdfs/Parker_et_al_TAFS_2009.pdf
54. Kvach, Y.* & C.A. Stepien. 2008. The invasive round goby *Apollonia melanostoma* (Actinopterygii: Gobiidae) – a new intermediate host of the trematode *Neochasmus umbellus* (Trematoda: Cryptogonimidae) in Lake Erie, Ohio, USA. *Journal of Applied Ichthyology*. 24:103-105. doi:10.1111/j.1439-0436.2007.01024x http://www.utoledo.edu/nsm/lec/pdfs/Kvach%26_Stepien_2008_jai_10241.pdf
53. Kvach, Y.* & C.A. Stepien.** 2008. Metazoan parasites of introduced round and tubenose gobies in the Great Lakes: Support for the “enemy release hypothesis” *Journal of Great Lakes Research*. 34:23-35. http://www.utoledo.edu/nsm/lec/pdfs/goby/Kvach_Stepien_2008_Metazoan_pa.pdf
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(=Stepien as corresponding author and lead P.I.)**

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Manuscripts Currently In Review or Revision

95. Ouyang, Z., C. Shao, C., H. Chu, R. Becker, J. Chen, T. Bridgeman, C.A. Stepien & R. John. Relating Chlorophyll-a to CO₂ flux in western Lake Erie. *In Re-review*.
96. Karsiotis, S.*, T.J. Sullivan*, K.E. Klymus* & C.A. Stepien**. Population genetic structure and comparative diversity of smallmouth bass: Patterns from two genomes.

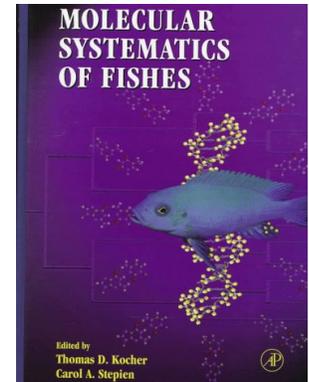
**PUBLICATIONS, Continued (* = students, postdocs, and techs sponsored by Carol A. Stepien)
(**=Stepien as corresponding author and lead P.I.)**

Manuscripts Currently In Review or Revision

97. Shepherd, B.S., T.R. Paul, D.E. Leaman, M. Mathilakath, M.M.Vijayan, **C.A. Stepien**, & A.R. Spear. The effects of sex and thermal regimen on the acute stress response in yellow perch (*Perca flavescens*).
98. Kramer, E* & **C.A. Stepien**** . Genetic divergence of nearby river and reef spawning walleye in central Lake Erie.
99. Snyder, M* & **C.A. Stepien**** . Genetic patterns across an invasion's history: a test of change vs. stasis for the Eurasian round goby in North America.
100. Snyder, M* & **C.A. Stepien**** . Invasive species in the Lake Erie watershed. Ch. In: Natural History of Lucas County (ed: E. Tramer).

Book

Molecular Systematics of Fishes. 1997. Academic Press (co-edited with Thomas Kocher) Reviewed in *Nature* 1997, 389:30 as "A must for teleost taxonomists and general fans of phylogenetic systematics". Also reviewed very positively by *Copeia* and *Quarterly Review of Biology*. Sold-out and reprinted in 2002.



GRANTS AND AWARDS (~\$12.46 million to date as PI or co-PI)

Carol A. Stepien

Current (~\$3.36 million as PI or co-PI)

- National Science Foundation (NSF)** REU PI (Research Experiences for Undergraduates), DBI-1461124. *Using the Lake Erie Sensor Network to Study Land-Lake Ecological Linkages*. co-PI=K. Czajkowski, \$350,000, 3 years, 2015-18. <http://www.utoledo.edu/nsm/lec/REU.html>. 300+ applicants for 2016. Engages African-American, Hispanic, Native American minority students, veterans, first-generation college students in summer research program across Engineering, Biology, Environmental Sciences, Chemistry, and Public Health
- US Environmental Protection Agency (USEPA)**. P.I. Great Lakes Restoration Initiative (GLRI). *Invasive Species Prevention of fish and mollusks from bait, outfitter, and pet stores using metagenetic methods, supply chain analyses, and public education*. Co-PI=K. Czajkowski, A. Solocha. \$500,000, 2 years, 2016-18. (New)
- National Science Foundation (NSF)**. IOS (Integrated Organismal Systems), DBI-1354806. CoPI (D. Leaman=P.I.) *Collaborative Research: Gene diversity of the VHS fish virus: Evolution of cellular immune response and pathogenesis*. \$550,000, 3 years, 2014-2017.
- USEPA GLRI**, PI. *Early detection DNA technology for high risk invasive fish species*. Co-PI: V. Sigler. GL-00E01149-0, \$600,000, 4 years, 2012-16.
- USDA Agricultural Research Service**, Fish Health and Aquaculture. PI. *VHS fish virus in yellow perch aquaculture*. Co-PI: D. Leaman. In collaboration with ARS (B. Shepherd). UT \$861,000, 2009-18 (renewable annually for ~\$160,000, \$300,000 beginning fall 2016). USDA-ARS CRIS project #3655-31320-002-00D, under specific cooperative agreement #58-3655-9-748.
- US Environmental Protection Agency (USEPA)**. P.I. Great Lakes Restoration Initiative (GLRI). *Invasive invertebrate species prevention, detection, and control: A new next generation sequencing assay*. GL-00E01289, \$500,000, 3 years, 2014-17.

COMPLETED GRANTS AND AWARDS (~\$9.1 million)

- National Science Foundation (NSF)** PI of Gk-12 program. *Graduate fellows in high school STEM education: An environmental science learning community at the land-lake ecosystem interface*. 4 co-PIs, 8 graduate fellows/yr, 8 high school teachers/yr. Co-PIs: T. Bridgeman, K. Czajkowski, C. Gruden, R. Becker. NSF DGE-0742395, \$2.7 million, 7 years, 2008-15. Mentored 31 graduate students from Environmental Sciences, Civil Engineering, Biology, Geography, and Geology; engaged 2500 high school students from 10 high schools, 84 science & engineering publications, 344 conference presentations, 69 synergistic activities. http://www.utoledo.edu/nsm/lec/gk12_grant/index.html

COMPLETED GRANTS AND AWARDS, Continued*Carol A. Stepien*

- NSF Field Stations and Marine Labs (FSML) program**, lead PI. *An environmental sensor network for the Lake Erie Center*. Co-PIs: J. Chen, K. Czajkowski, R. Becker, T. Bridgeman. NSF DBI-1034791, \$350,000, 4 years, 2010-14. NSF Featured Highlight. AGU Featured Spotlight.
- US Department of Agriculture, NIFA** (formerly CSREES), PI. *Genetic detection, disease resistance, and population spread of the VHS fish virus in the Great Lakes*. Co-PIs: J. Willey, J. Bossenbroek, D. Leaman. OHOW-208-03256, \$909,000, 7 years, 2008-15.
- NOAA Ohio Sea Grant**. PI. *Implementation of a rapid genetic test for the VHS fish virus*. Co-PI: J. Willey. R/LR-015, \$180,000, 4 years, 2011-14.
- National Science Foundation**. PI. *DDIG (Doctoral Dissertation Improvement Grant): Phylogenetic relationships, biogeography, and genetic diversity of the VHS fish virus*. For Ph.D. student L. Pierce. DEB-1110495, \$15,000, 3 years, 2011-14.
- National Science Foundation**, URM: *Undergraduate research and mentoring in environmental Biology at the land-lake ecosystem interface*. Co-PI with V. Sigler (PI). DBI-0829252, \$600,000, 5 years, 2009-14.
- Ohio Board of Regents & Univ. of Toledo**. *Engagement of the public through citizen science: Maumee River watershed*, CoPI. PI: K. Czajkowski. \$45,000, 2015-16.
- NOAA CILER** (Cooperative Institute for Limnology and Ecosystems Research), PI. *A rapid and accurate DNA test for invasive fish species from water samples*. \$23,000, 2013-14. (PI) and T. Bridgeman (co-PI). NA09OAR4170182, \$750,000, 4 years, 2009-14.
- National NOAA Sea Grant Law Center**, coPI. *Legal tools and best practices for reducing harmful algae blooms in Lake Erie*. PI: K. Kilbert, coPI: J. Reutter. \$35,000, 2 years, 2011-13.
- NOAA Sea Grant**. PI. *Development and implementation of a high-resolution data base for fishery management: Walleye and yellow perch stock structure (Parts 1 and 2)*. Ranked #1 in Ohio Sea Grant Competition. R/LR-7 & R/LR-13, \$360,000, 6 years (renewed), 2004-13.
- National Science Foundation**. PI. *Molecular systematics, biogeography, and invasion identity of Neogobiiin fishes*. DEB-0456972, \$300,000, 2004-9. Output: 14 papers, 44 research presentations, 2 Ph.D. students, 3 undergraduates, 1 high school student supported.
- Additions to NSF DEB-0456972** (from previous page):
- NSF REU Supplement for *Undergraduate Research*. DEB-0727913 \$6,000, 2007-8.
 - NSF Supplement for *Visiting scientists from Russia and Ukraine*. 0630172, \$10,000.
 - NSF Supplement for *Undergraduate Research on the monkey goby*. 0620942, \$7,000.
- National Science Foundation**. PI. *Field Stations and Marine Laboratories. FSML Planning grant for the Lake Erie Center*. Co-PIs: C. Gruden, K. Egan, K. Czajkowski, C. Mayer. DBI-0627254, \$25,000, 2006-09; Full proposal funded for \$350,000 in 2010.
- NOAA Sea Grant**. PI. Knauss graduate fellowship for Ph.D. student Sepulveda-Villet, \$50,000, 2012.
- NOAA Sea Grant**. PI. Knauss Graduate Fellowship for Ph.D. student Joshua Brown. \$50,000, 2008-9.
- NSF Research Experiences for Teachers**. PI. *RET: Population genetic diversity and divergence Patterns of the rainbow darter fish in the Lake Erie watershed*; Sponsored high school environmental science teacher T. Bollin of Toledo Early College High School, 100% minority. DBI-0727913, \$10,000, 2007-09 (resulted in publication with teacher).
- US Environmental Protection Agency**. PI. *High-resolution delineation of Lake Erie fish populations: DNA databases for resource management*. CR-83281401-0, \$628,000, 2006-10.
- National Science Foundation**. Research Experience for Undergraduates. *REU: An integrated analysis of urbanized stream ecosystems*. Co-PI, with B. Walton (PI), DBI-0243878, \$190,000, 2002-2005.
- President's Initiative Award, CSU**. *Urbanization impacts on stream ecosystems: A theme for improving research and secondary school education in Northeast Ohio*. Co-PI, with B. Walton (PI). \$142,000, 2003-2005.
- Lake Erie Protection Fund**. PI. *An Environmental Risk Assessment Model to improve public understanding of the Lake Erie Quality Index*. \$10,000, 2001-2003.

COMPLETED GRANTS AND AWARDS, Continued**Carol A. Stepien**

- Lake Erie Protection Fund.** PI. *Genetic detection and monitoring of aquatic nuisance goby and mussel populations in Lake Erie.* #02-04, \$100,000, 2004-6 (findings led to NSF award).
- NOAA Sea Grant.** PI. *Genetic structure of smallmouth bass populations from nuclear and mitochondrial DNA sequences.* R/LR-5, \$160,000, 2002-5 (findings led to USEPA award).
- Ohio Sea Grant.** PI. *Population genetics of darters and unionids in northern Ohio Rivers.* R/LR-9PD, \$7,500, 2004-05.
- Great Lakes Fishery Commission.** *Stock discrimination of Lake Erie walleye – A mixed stock analysis contrasting genetic techniques* (separate funding to Canadian co-PIs T. Johnson, C. Wilson, B. Dixon) \$50,000, 2003-04 to Stepien (findings led to NOAA Sea Grant and USEPA funding)
- Lake Erie Protection Fund.** *Population genetics of yellow perch in the Great Lakes.* \$100,000, 2001-04. (findings led to USEPA and NOAA Sea Grant awards)
- Case Western Reserve University.** PI. *Achievement award for outstanding teaching, research, and mentorship in ecology and the environmental sciences.* Environmental Laboratory Award, \$10,000, 2002-04.
- U.S. Fish and Wildlife Service.** PI. *Invasion of the ruffe in the Great Lakes,* \$2,000, 2003-4.
- NOAA National Sea Grant Program.** PI. *Population genetics of walleye in the Great Lakes from nuclear and mtDNA sequences.* \$104,000, 2000-03. (Continued with awards from the Great Lakes Fishery Commission, NOAA Sea Grant, and USEPA).
- Ohio Sea Grant.** PI. *Nuclear DNA variation in zebra and quagga mussel populations.* \$7,500, 1999-2000 (continued with Sea Grant and Lake Erie Protection Fund award).
- Lake Erie Protection Fund.** PI. *Nuclear and mtDNA sequence variation in yellow perch.* \$7,500, 1998-2000 (continued with large grant award 2001-04).
- Lake Erie Protection Fund Large Grant Award.** *Genetic and habitat identity of walleye spawning in Lake Erie tributaries.* \$100,000. 1995-99. (Continued with NOAA Sea Grant award).
- Ohio Sea Grant Program, N.O.A.A.** PI. *Population genetics of three percid fishes (walleye, yellow perch, and ruffe) in the Great Lakes.* \$8,000, 1993-95. (Led to large grants for each).
- U.S. Fish and Wildlife Service.** PI. *Genetics of the blue pike and walleye.* \$5,000, 1998-2000.
- National Sea Grant Program, N.O.A.A.** PI. *Genetics and otolith signatures of the invasive ruffe percid fish in the Great Lakes.* \$140,000, 1995-98 (separate from funding to collaborator G. Spangler, University of Minnesota).
- Ohio State Sea Grant and Minnesota Sea Grant Inter-Program Grant.** PI. *Nuclear DNA sequence variation in the ruffe.* \$20,000, 1998-00 (Led to additional funding).
- National Fish and Wildlife Foundation Award.** PI. *Systematics of ruffe.* \$15,000, 1997-98.
- National Fish and Wildlife Foundation.** PI. *Systematics of dreissenid mussels.* \$15,000, 1997-98.
- Lake Erie Protection Fund.** PI. *Genetic characterization of invasive gobies in the Great Lakes.* \$7,500, 1997-98 (Joint with below).
- Ohio Sea Grant Program, N.O.A.A.** PI. *Genetics of invasive gobies.* \$7,500, 1997-98.
- NOAA Sea Grant.** PI. Knauss Congressional Fellowship for M.S. student M. Chandler. \$36,000, 1996-97.
- NOAA National Sea Grant Program.** PI. *Genetics of the zebra and quagga mussels: A comparative analysis of mitochondrial DNA sequence data.* \$198,000, 1994-98.
- International Travel Grant from Portuguese Government.** University of Madeira, Portugal. *Lecture series and research on molecular genetics and evolutionary ecology of fishes.* \$5,000, 1995.
- National Research Council Research Associateship.** PI. National Marine Fisheries Service, NOAA. *Population genetics of commercial continental slope fishes, based on mtDNA sequencing.* Included Research Expedition to Japan. \$100,000, 1990-92.
- Scripps Institution of Oceanography Director's Award** for service in sponsoring student research. PI. University of California, San Diego. \$3,000. 1991-92.
- Sloan Foundation Postdoctoral Fellowship in Molecular Evolutionary Biology.** The University of Texas at Austin. *Molecular evolution of blennioid fishes.* \$50,000, 1988-1990.
- University of California Grant** for sponsoring undergraduate genetics research, \$500, 1991.

COMPLETED GRANTS AND AWARDS, Continued

Carol A. Stepien

- National Science Foundation.** PI. Postdoctoral research award, University of California, San Diego. *Evolution, population genetics, and biogeography of clinid fishes from molecular and morphological data.* #BSR-8600180, \$80,000, 1986-88
- University of California Grant** for sponsoring undergraduate research project. PI. *Fish populations and ecological relationships in Baja California.* \$500, 1988-89
- National Geographic Society** Travel Grant for Research and Exploration to South America. PI. *Systematics and biogeography of South American fishes.* #3615-87, \$7000, 1987.
- University of California Research Expeditions Grant.** PI. *Biogeography and ecology of Chilean kelpbed fishes.* Travel and research expenses to South America. (Trained 10 secondary school teachers and undergraduate students in field research) \$8000, 1987.
- University of San Diego Grant** for Hubbs Marine Research Center. PI. *Tidepool fish ecology.* \$500, 1985-86 (sponsored 3 student researchers, 2 published).
- Lerner-Gray Grant for Marine Research,** American Museum of Natural History. PI. *Kelpfish ecology: habitats, distribution, and sexual dimorphism.* \$500, 1983-85.
- Sigma Xi Grant-in-aid.** PI. *Kelpfish color patterns.* \$500, 1983-85.
- Sea Grant Graduate Research Trainee Assistantship,** University of Southern California. *Nearshore fish larvae population biology and feeding ecology.* \$15,000, 1981-83.
- Theodore Roosevelt Memorial Grant,** American Museum of Natural History. PI. *Kelpfish life history and ecology.* \$400, 1981-83.
- W. T. Knight Undergraduate Award for Marine Sciences.** *Fish bioluminescence.* \$300, 1978.

AWARDS AND HONORS

- American Geophysical Union, Highlighted Research Selection, 2015
- Distinguished University Professor Lecturer, 2014-present
- NSF Highlighted Research (Climate Change Land-Lake Sensor Network), 2014
- Distinguished University Professor Appointment (of 18 across Univ.), University of Toledo, 2012-present
Highest permanent honor the University of Toledo bestows on a faculty member for earning national and/or international recognition and distinction for educational and scholarly contributions that have been transformative in their field (one of just 18 across the University)
- University of Toledo Sabbatical, Fisheries Research in Australia, 2013
- Ohio Lake Erie Commission Outstanding Organization Award, 2011
- Sigma Xi Scientific Honorary Dion D. Raftopoulos Outstanding Researcher Award, 2010
- Outstanding Faculty Research Award. University of Toledo, 2008
- Editor's Awards for Service to the Journal of Great Lakes Research, 2007 and 2011
- Elected to Board of Directors, International Association for Great Lakes Research, 2004-2007
- Service Award from International Association for Great Lakes Research, 2007
- League of Women Voter's Environmental Award, 2007
- NOAA Research Spotlight Zebra Mussel Genetics, <http://www.oar.noaa.gov/spotlite/archive>
- Who's Who in America (1990 through present)
- Who's Who in Science and Engineering
- Who's Who of American Women
- Who's Who in American Colleges and Universities
- Who's Who in American Education
- American Men and Women of Science
- George B. Mayer Assistant Professor Chair of Urban and Environmental Studies
- Stoye first place graduate student best paper award in Ichthyology,
American Society of Ichthyologists and Herpetologists annual conference
- First place research presentation award in Environmental sciences. Southern California Academy of Sciences Annual conference
- Best undergraduate student paper award, Beta Beta Beta Biological honorary society annual conference

EDITORIAL EXPERIENCE

Carol A. Stepien

Biological Invasions, Associate Editor (Genetics), 2009-present
Ecological Processes (Associate Editor, J. Chen Editor-in-Chief), 2016-present.
Molecular Phylogenetics and Evolution, Editorial Board, 1999-present
Journal of Great Lakes Research, Associate Editor (Genetics & Fish Ecology), 1998-2013,
Special Issue Editor, 2012-present
Edited *Molecular Systematics of Fishes* 1997, Academic Press, (with co-editor T. Kocher)

BOARD OF DIRECTORS

International Association for Great Lakes Research (IAGLR) 2004-2007 (elected, 3 year term)

REVIEWER EXPERIENCE

Federal Grant Review Panels

NSF, National Science Foundation, Integrated Organismal Systems Panel, Evolutionary Genetics Panels, Sustainability Research Networks Panel, Biological Oceanography Panel, Systematic Biology Panels (including 2016).
USDA Aquaculture Panel (2016).
National Oceanic and Atmospheric Administration (NOAA), Sea Grant Biotechnology
AAAS, American Association for the Advancement of Science, Aquatic Ecology and Technology Grant Panel
USGS, U.S. Geological Survey, Biological Resources Discipline, Global Change Program.

Grant Reviewer

AAAS, Aquatic Ecology and Technology
NSF, Integrated Organismal Systems (Panels and grants), Systematic Biology (Panels and grants) and Biological Oceanography Division (Panels and grants), Sustainability Research Networks (Panel and grants)
USGS Global Warming grants and panel
Austrian National Science Foundation
National Geographic Society Research
NSERC, Natural Sciences and Engineering Research Council of Canada
NOAA Sea Grant College Program, U.S. (Panel), State Reviews: Wisconsin, Michigan, South Carolina, Florida, New York (New York State Panels)
Great Lakes Fishery Commission
Great Lakes Fishery Trust

Scientific Journal Reviewer

Biological Invasions (assoc. editor 2009-present)
Biological Journal of the Linnean Society
Canadian Journal of Fisheries and Aquatic Sciences
Canadian Journal of Zoology
Copeia (American Society of Ichthyologists and Herpetologists)
Diversity and Distributions
Ecology and Evolution
Environmental Biology of Fishes
Evolution (Society for the Study of Evolution)
Fisheries (American Fisheries Society)
Freshwater Biology Genetics
Heredity
Journal of Biogeography
Journal of Experimental Marine Biology and Ecology
Journal of Fish Biology

Scientific Journal Reviewer, Continued

Carol A. Stepien

Journal of Great Lakes Research; Associate Editor 1998-present
Journal of the Marine Biological Association of the United Kingdom
Journal of Virological Methods
Marine Biology
Molecular Biology and Evolution
Molecular Ecology
Marine Ecology Progress Series
Molecular Phylogenetics and Evolution; Editorial Board 1999-present
North American Journal of Fisheries Management
PLOS-One
Prairie Naturalist
Scientific Reports @Nature.Com
Transactions of the American Fisheries Society
U.S. Fishery Bulletin
Zoological Journal of the Linnean Society

University Tenure & Promotion External Reviewer

University of South Carolina
New Mexico State University
California State University Long Beach
Miami University

MEMBERSHIPS AND SERVICE IN PROFESSIONAL SOCIETIES

American Association for the Advancement of Science (AAAS)
American Association of University Women (AAUW)
American Fisheries Society; keynote speaker, symposium organizer, reviewer, best paper judge
Student Travel Award committee (Genetics Section)
American Society of Ichthyologists and Herpetologists (ASIH); Symposium coordinator,
Best paper award judge, Invited panelist speaker, Graduate student mentoring program
American Women in Science (AWIS)
European Society of Evolutionary Biology
Great Lakes Aquatic Ecosystem Research Consortium (GLAERC); institutional representative
International Association for Great Lakes Research (IAGLR); Board of Directors 2004-2007,
Genetics editor 2002-2012, Special issues editor 2002-present; local committee annual
conference 1999, symposium coordinator (1999-present), reviewer, best paper judge (1998-
present), chair and coordinator of 2009 annual conference
Ohio Academy of Sciences (OAS), symposia, reviewer
Sigma Xi Scientific Honorary Society, session chair, Toledo chapter President (2013-2015), Science
Café series developer and coordinator (2013-present), National conference representative 2015
Society for Freshwater Science (SFS)
Society for the Study of Evolution (SSE)
Society of Systematic Biologists (SSB)

RESEARCH PRESENTATIONS (265+ conference presentations & seminars given by Carol Stepien)

Presentations to Scientific Societies and Research Conferences

- American Fisheries Society**, 2016 in Kansas City (oral presentation), 2015 in Portland OR (2 presentations), 2014 in Quebec (2 invited symposia talks, 1 student talk), 2013 in Little Rock, AR (2 invited symposium presentations, co-led 2 symposia, 2 student talks), 2012 in Minneapolis (2 invited symposium presentations), 2011 in Seattle (3 invited symposium presentations, poster, talk by student), 2010 in Pittsburgh (invited symposium presentation, talk, 3 posters, talk by student), 2008 in Ottawa (talk, 2 talks by students), 2004 (invited keynote presentation), 2003 in Quebec City (invited research presentation in the symposium “*Use of genetic markers for management and conservation*”, another talk, 2 posters, talk by Ph.D. student, 1996 talk, 1994 talk, 2003 Western Division in San Diego (invited symposium presentation, “*Interactions of stocked and native fish populations*”)
- International Association for Great Lakes Research (IAGLR)** annual conference, 2016 (lead 2 symposia sessions, talk + 4 student talks), University of Guelph (talk + 3 student talks), 2015 at U. Vermont (talk + 2 others with students, co-led session), 2013 at Purdue U. (talk, 2 posters, 2 student talks), 2011 in Duluth (talk, poster, 3 student talks, poster with students), 2010 in Toronto (talk, 2 posters), 2009 at Univ. Toledo (3 talks, 5 talks by students, 4 posters with students), 2008 at Univ. of Trent (talk, 3 others with students), 2007 at Pennsylvania State Univ. (3 talks, 3 others with grad students, lead for session on fisheries and fish ecology), 2006 at Univ. Windsor (talk, 5 others with postdoc +4 grad students), 2005 at Univ. Michigan (talk, 2 by grad students), 1999 (2 talks), 1998 (2 talks). Local committee for 1999 annual conference, Case Western Reserve Univ. (symposium organizer, 2 talks).
- International Conference on Aquatic Invasive Species**, 2016 in Winnipeg (talk + 3 talks by students), Session lead on eDNA, 2013 in Niagara Falls (2 talks, poster, 2 student talks, 1 student poster), 2010 in San Diego (2 talks, poster), 2009 in Montreal (talk, poster), 2006 in Key Biscayne (talk, poster), 2003 in Windsor (talk), 2002 in Washington, D.C. (talk)
- World Aquaculture Conference**, 2016 in Las Vegas (2 talks; percid fish population genetics and genomics; VHS fish virus in the Great Lakes and aquaculture)
- Society for Freshwater Sciences**, 2014 in Portland OR (2 invited symposium talks, environmental DNA and large genomic/genomic data sets, 1 student talk)
- American Society of Ichthyologists and Herpetologists (ASIH)** annual conferences, 2014 in Chattanooga, TN (2 talks, including invited symposium), 2009 Portland (talk), 2007 St. Louis (talk), 2006 New Orleans (talk, poster), 2005 Tampa (talk, poster), 2004 in Norman (talk, 2 posters), 2003 (talk), 2001 (talk, 2 posters), 1999(2), 1998(2), 1997, 1995, 1994, 1993, 1992, 1990, 1989, 1988, 1986, 1984, 1983. Invited speaker on *Combining family and career in university science*. Organized symposium *Evolution of fishes from DNA* (22 speakers, 1.5 days; 400 attended)
- International Marine Bioinvasions Conferences**, 2014 in Oman (1 presentation, 1 poster), 2003, Scripps Institution of Oceanography, San Diego, California (talk, poster)
- EcoSummit (4th International EcoSummit for Ecological Sustainability)**, October 2012 in Columbus OH (1 talk and 1 poster by Stepien, 2 talks by students with Stepien as co-author, 3 posters by students with Stepien as co-author), “*Can we thwart a community of exotic species? Lessons from genetics of Great Lakes invasions*”.
- Society for the Study of Evolution (SSE)**, 2012 in Ottawa, Canada (talk, 2 talks by students co-authored with Stepien), 2006 in Stony Brook, NY (talk, poster, plus talk with postdoc), 2004, Ft. Collins, CO (talk, 2 posters). 2001(2), 1995, 1994, 1989
- Great Lakes Fishery Commission annual Lake Committee conference.** *Genetic patterns of Great Lakes walleye and yellow perch spawning populations*, 2009
- Lake Erie Millennium Conference**, 2010 (4 posters), 2008 (talk, 3 posters), 2006 in Windsor, Ontario (talk, 2 posters)

RESEARCH CONFERENCE PRESENTATIONS by *Carol Stepien, Continued.*

- Ohio Division of Wildlife** annual meetings, 2014 (2 talks by students, 2 posters), 2013 (2 talks by students, 2 posters), 2012 (2 talks by students, 2 posters), 2011 (2 talks, 2 posters by students), 2010 (4 posters by students), 2009 (4 posters by students), 2008 (4 posters by students), 2008 (5 posters by students), 2007 (4 talks, 3 by students, poster led by students), 2006 (1 talk by postdoc, 4 posters by students), 2005 (1 poster, 4 talks by students), 2004, (talk + poster led by student), 2003 (3 posters, 2 led by students), 2002 (talk, 2 posters led by students), 2001 (talk, poster led by student), 1997 (talk led by Ph.D. student)
- Invasions in the Holarctic, Borok Russia**, Sept.-Oct. 2005 (3 talks, 1 by grad student),
Genetic diversity and divergence patterns of exotic species introduced from the Ponto-Caspian into the North American Great Lakes. Others = ruffe, dreissenid mussels, & gobies
- Risk Analysis of Invasive Species in the Great Lakes Conference**, Cleveland State University, 10-2004 (talk, 3 posters led by students)
- Percis III International Conference** (Percid fishes), 2003, Madison, Wisconsin. (2 talks, 1 by student)
- Ohio Academy of Sciences**, 2008 (6 talk presentations by students), 2003 (talk), 2002 (talk), 1998
Invited symposium speaker on *Molecular systematics*.
- Woodlake Field Station Annual Conference, Cuyahoga Valley National Park**. 2003, 2002, 2001
(Total = 3 talks, 3 posters by Stepien; 6 talks, 5 posters led by students)
- Risk Analysis for Invasive Species Conference**, U.S. Department of Agriculture, Society for Risk Analysis and Ecological Society of America, 2001 (2 poster presentations)
- American Fisheries Society and U.S. Geological Survey**, Invited symposium, *Evolutionary significant units and the Endangered Species Act*, 1994, Monterey, California (talk)
- International Symposium on Biology and Management of Ruffe**, Sea Grant, Great Lakes Network, 1997 (Invited presentation on *Population genetics of ruffe*)
- Lake Erie Protection Fund**, 2000, 1995 (Invited keynote research presentations)
- Southern California Academy of Sciences**, 1992, 1983
- American Society of Zoologists**, 1988, 1982
- Western Society of Naturalists**, 1988, 1985, 1983
- Invited Research Departmental Seminar Presentations at Universities and Museums by Carol A. Stepien**
- NOAA Pacific Marine Environmental Lab, 2016. *Marine Community Identities, Diversity, Adaptations, and Linkages: Metagenomic Patterns across Time and Space*
- University of Central Florida, 2016. *Invasive species genetics and genomics*.
- Texas A&M University, 2016. University of Maryland, 2016. University of Nebraska, 2016. University of North Carolina, 2015.
- University of Texas, San Antonio. November, 2014. *Environmental Challenges Facing our Great Lakes: Leading to the Toledo Water Crisis*.
- University of Toledo, October 21, 2014. Distinguished University Professor Award Lecture.
Understanding our Great Lakes Fishes with DNA.
- Florida International University. June 2013.
- University of Melbourne, Australia. March 5, 2013.
- Victoria Museum, Melbourne, Australia. March 4, 2013.
- University of Tasmania, Australia. March 1, 2013.
- United Arab Emirates Environmental Agency, January 2013. *Evaluating the genetic stock structure of fishes: Comparisons between the Arabian Gulf and the North American Great Lakes*.
- University of Warsaw, Poland, January 2013
- University of Buffalo. *Population genetics of invasive mussels and gobies over time and space*. 2011.
- Sigma Xi Scientific Honorary, Dion D. Raftopoulos/Sigma Xi Award for Outstanding Research Lecture.
University of Toledo, 2010
- University of Toledo, Law School. *Invasive species and legal questions*. 3-10
- University of Toledo, Dept. of Chemistry. *Lake Erie Center research and invasion genetics*. 2009
- Russian Academy of Sciences, at St. Petersburg, Russia and in Moscow, Russia. 2009
- Bowling Green University, NSF SETGO program. *Career insights of a marine biologist*. 2009, 2013.
- Keynote Speaker at 38th Annual Meeting of the Commonwealth of Pennsylvania University Biologists,
Tom Ridge Environmental Center, 2007.

Invited Research Seminar Presentations at Universities and Museums by Carol A. Stepien, Continued.

US Geological Survey, Ann Arbor, 2007.
New Mexico State University, 2005
Bowling Green State University, 2005
University of Toledo, 2001 and 2004, Departmental of Environmental Sciences Seminars.
Grand Valley State University, Michigan, 2004
Bowling Green University, 2003. *Molecular genetics and systematic investigations of fishes, with comments on mentorship of women in science.*
Seminars to the Cleveland State University Dept. of Biological, Geological and Environmental Sciences, 2001, 1998.
Odessa University, Ukraine, September 2002. *The genetics of species invasions.*
Stone Laboratory, Ohio State University seminar, 2002
Beckman Sequencing Conference, University of Pittsburgh, PA, 2002
University of Akron, Ecology lunch seminar, 2002. Department of Biology seminar, 2002
Great Lakes Environmental Research Laboratory (GLERL), Ann Arbor, MI, 2001
John Carroll University, October 2001, 1999, 1994
Kent State University, 2001
Woods Hole Oceanographic Institute, 2000
Case Western Reserve Univ, Genetics Dept., Medical Schl., 2002 Biology Dept., 1992, 1995, 1998, 1999
University of Louisville, 2000
University of Minnesota, 2000
University of North Carolina, 2000
Ohio Wesleyan University, 1999
Heidelberg College, 1999
University of Florida, Gainesville, 1998
University of South Florida, 1993, 1997
Smithsonian Institution, Department of Molecular Systematics, 1997
University of Madeira, Portugal, 1995 (3 lecture mini-course on *Genetics and Evolution*)
University of Tokyo, Kochi University, Hakkodate University, Japan, 1992
Scripps Institution of Oceanography, University of California, 1987, 1989, 1990, 1992, 2014
Colorado State University, 1992
University of Kansas, 1992
University of Massachusetts, Boston, 1992
Ohio University, 1992
University of North Dakota, 1992
Tulane University, 1991
American Museum of Natural History, New York, 1990
University of California, Santa Cruz, 1989
California State University, Fullerton, 1989
University of Texas, Austin, 1989
Los Angeles County Museum of Natural History, 1989
San Diego County Museum of Natural History, 1989
San Diego State University, 1989
Instituto de Oceanologia, Universidad del Valparaiso, Chile, 1987
Instituto de Pesca Nacional, Argentina, 1987
Hubbs Marine Research Institute, San Diego, 1986
University of Southern California, 1985
University of San Diego, 1985
Chesapeake Biological Laboratory, University of Maryland, 1984

UNIVERSITY TEACHING EXPERIENCE

Carol A. Stepien

Courses Well-Qualified to Teach (beginning and advanced undergraduate and graduate levels)

Evolutionary Biology	Population Genetics	Genetics and Genomics
Population Biology	Marine Ecology	Aquatic Ecology
Systematic Biology	Biogeography	Ecology
Ichthyology	Animal Behavior	Environmental Biology
Conservation Biology	Vertebrate Biology	Molecular Systematics
Conservation Genetics	DNA Data Analysis	Evolutionary Ecology

Courses Taught at the University of Toledo (2004-present)

Advances in Population Genetics, fall 2015
Advances in Biogeography (graduate and advanced undergraduate), fall 2007
Great Lakes Fish Ecology, spring 2015 (with Dr. Patrick Kocovsky)
Invasion Ecology (graduate and advanced undergraduate students), fall 2014, 2005
Conservation Genomics (graduate students), spring 2012
Advances in Population Genetics and Genomics (graduate), spring 2014, fall 2011
Conservation Genetics (graduate and advanced undergraduate), 2013, 2010, 2008
Lake Erie Fisheries Management (graduate and advanced undergraduate students), fall 2012
(with Dr. Patrick Kocovsky, USGS, and Dr. Christine Mayer)
Evolutionary and Ecological Adaptations in Aquatic Ecosystems, summer 2011
Landscape Genetics (graduate and advanced undergraduate levels), spring 2011
Phylogenetic Systematics Methods, fall 2010
Molecular Evolutionary Ecology (graduate and advanced undergraduate), fall 2006
How to Write and Publish a Scientific Paper (graduate), spring 2007
Gk-12 program Environmental Science Education, 2008-2013
Fisheries genetics seminar, 2010, 2009, 2015
Research methods to early college high school students, 2008-2010
Speciation: Concepts and controversy (graduate), spring 2005

Courses Taught at Cleveland State University (2000-2004)

Trends in Ecology and Evolution (graduate seminar course)
Evolution, Creationism, and "Intelligent" Design (graduate seminar course)
Presentation Methods in Environmental Science, Technology and Policy
for Civil Engineering, Law, Urban Studies, and Biology graduate students
Marine Ecology (Junior-senior/Graduate full course)

Courses Taught at Case Western Reserve University (1993-2000)

Population Biology 310/410 (Junior-senior-graduate)
Marine Ecology 337/437 (Junior-senior-graduate)
Marine Ecology 335/435 Laboratory Fieldtrip to Bahamas (Junior-senior-graduate)
Animal Behavior 338/438 (Junior-senior-graduate)
Graduate Seminar in Ecology and Evolution 531
Undergraduate Seminar in Population Biology 387

Other University Teaching Experience

University of San Diego, Visiting Instructor, 1984-86. Sponsored 2 research students (both published with Stepien). General Biology, Environmental Biology, Senior Seminar, Marine Biology
California State University, Lecturer, 1983-84. Ecology, Invertebrate Zoology
University of Southern California, Teaching Assistant, 1980-84. Marine Biology, Ichthyology, Ecology, Marine Ecology, Systematic Biology, Evolutionary Biology, General Biology, Evolutionary Biology for Non-Majors

RESEARCH ADVISOR

Carol A. Stepien

Postdoctoral Scholars

- Katy Kymus, Ph.D. 2014-present. *Environmental DNA and Next-generation sequencing of invasive species in the Great Lakes*. Presentations at American Fisheries Society, IAGLR, Internat. Assoc. Aquat. Invasive Species. Co-authored three papers in review/progress with Stepien.
- Cecilia Hennessy LaBonte, Ph.D. 2015-16. *Development of an environmental DNA/ichthyoplankton assay to simultaneously identify and quantify all members of a fish community*. Now teaching at a small college (Stepien had one year of funding only).
- Amanda Haponski, Ph.D. 2013-14. *Population genetics/genomics of Great Lakes fishes*. Two publications as lead with Stepien. *Transactions of American Fisheries Society* (2014), *Conservation Genetics* (2016), 2 co-authored book chapters, with Stepien as lead; both 2015. Now: postdoctoral scholar University of Michigan Museum of Natural History (under Dr. D. O'Foighill)
- Yuriy Kvach, Ph.D. 2006. Visiting postdoctoral scholar, Lake Erie Center, Univ. of Toledo, sponsored by Stepien's NSF grant. *Parasites of the invasive round goby in the Great Lakes*. 3 papers with Stepien in *J. Applied Ichthyology*, *J. Great Lakes Research*. (Now: National Academy of Sciences, Odessa, Ukraine). Continuing to collaborate with Stepien; 2016 and 2015 publications with Stepien.
- Rex Meade Strange, Ph.D. 2004-2006. Lake Erie Center, University of Toledo. *Lake Erie walleye genetics*, funded by Stepien's Sea Grant funds. 7 Talk research presentations and poster (with Stepien): Lake Erie Walleye Task Group annual meeting (2005, 2006), Ohio Division of Wildlife annual meeting (2005, 2006) IAGLR (2005, 2006), ASIH (2005), SSE (2006). Two papers with Stepien, *Fishery Bulletin* and *Canadian Journal of Fisheries and Aquatic Sciences*. (Now: Assoc. Prof. of Developmental Biology, Southern Indiana University)
- Meriel Brooks, Ph.D. 1992-3. Case Western Reserve University. *Blennioid phylogeny*. Publication with Stepien, talk presentation at ASIH with Stepien. (Now: Professor, Green Mountain Coll., VT)

Ph. D. Students

Current Ph.D. Students:

- Megan Niner, M.S. Summer 2014-present. The University of Toledo. Projected Dissertation: *Viral Hemorrhagic Septicemia Virus Occurrence and Evolution in the Laurentian Great Lakes*. IAGLR (International Assoc. for Great Lakes Research) Research Scholarship award (2015). Co-author of PLOS One paper with Stepien (2015). Presentations at Midwest Graduate Research Symposium and Ohio Research Review (2015, 2016).
- Nathan Marshall, M.S. 2014-present. The University of Toledo. Projected Dissertation: *Metagenetic Analyses of Native and Invasive Mollusk Communities from Environmental Samples, with an Ecological Case Study on Invasive Dreissenids*. Receptient of 2015 Malacological Society of London Travel Award £500 to present at 2nd International Meeting on Biology and Conservation of Freshwater Bivalves, October 2015. Presentations at Midwest Graduate Research Symposium (2015, 2016) and IAGLR (2016). 2016-17 Bain Scholarship, the Carey Found.
- Matthew Snyder. 2013-present. The University of Toledo. Projected Dissertation: *Species Detection, Population Genetics, and Genomic Patterns of Invasive Gobies over Time and Space*. Full Graduate Fellowship Scholarship (stipend, tuition) & fees award from University of Toledo (2015-2020). 2015 Paul W. Rodgers (IAGLR) Scholarship Award for Fisheries Science. 2015 Presentations (2015, 2016) at Int. Conf. Aquatic Invasive Species, IAGLR, Midwest Graduate Research Symposium, and Ohio Research Review. Paper in review co-authored with Stepien.

Current M.S. Student:

- Eva Kramer. 2015-present. *Population Genetics and Genomics of Asian Carp Invasions*. Paper in review as lead author co-authored with Stepien.

RESEARCH ADVISOR, Continued
Graduated Ph.D. Students

Carol A. Stepien

- Lindsey Pierce, Ph.D. 2013. The University of Toledo. Dissertation: *Evolution and detection of the fish Viral Hemorrhagic Septicemia virus (VHSV)*. Oral presentations at International Joint Evolution Conference, Ottawa (2012), Evolution Conference, Marseilles France (2012), International EcoSummit Conference (2012), American Fisheries Society (2nd place best paper award), Sigma Xi (2 best paper awards), IAGLR, Midwest Fish and Wildlife Conference, Ohio Fish and Wildlife Management Association (talk 2011, best poster award). NSF Gk-12 fellow 2010-2012. IAGLR Scholarship 2010, Best Graduate Woman in STEM, U Toledo 2011, NSF Doctoral Dissertation Improvement Grant 2011-13. Papers published in *Molecular Phylogenetics and Evolution* 2012, *J. Virological Methods* 2013, *PLoS-One* 2013 (as lead, all co-authored by Stepien), another as co-author in *Journal of Great Lakes Research*. Co-Authored 2015 paper with Stepien. Now: Postdoctoral associate, Cleveland Clinic on Malaria Evolution.
- Amanda Haponski, Ph.D. 2013. The University of Toledo. Dissertation: *Evolutionary, biogeographic, and population genetic patterns of walleye and other Sander: Relationships across continents, corridors, and spawning sites*. Oral research presentations: International Joint Evolution Conference, Ottawa (2012; Travel Award), Evolution Conference in Marseilles France (2012), International EcoSummit Conference (2012), Ohio Academy of Sciences, Ohio Division of Wildlife, IAGLR, Great Lakes Fishery Commission, Midwest Fish & Wildlife Conference, Sigma Xi. Papers published as lead author with Stepien as co-author (*Molecular Phylogenetics and Evolution* 2008, *J. Fish Biology*, 2009, *J. Great Lakes Research*, 2014, *Biological J. Linnean Society* 2013), 3 as co-author to Stepien (*Mol. Phyl. Evol.* 2010, *Mol. Ecol.* 2009, *Great Lakes Commission* 2010). IAGLR Scholarship, Sigma Xi Grant, Norman Baldwin Fishery Science IAGLR Scholarship, Visiting student at US National Museum, Smithsonian Institution, NSF Deep Fin Scholarship. NSF Gk-12 fellow. Defended June 2013. Present: Postdoctoral fellow in our lab (2013-2014). Now: postdoc in University of Michigan mollusk lab (2015-present).
- Matthew E. Neilson, Ph.D. 2009. Dissertation: *Systematics and biogeography of Ponto-Caspian gobies*. The University of Toledo. Research Presentations: Risk Analysis of Invasive species conference, Ohio Division of Wildlife, Sigma Xi, International Assoc. Great Lakes Research, American Soc. Ichthyologists & Herpetologists, Borok 2 conference in Russia, Ohio Academy of Sciences. Lead author of 3 papers with C. Stepien (*Biological J. Linnean Society* 2009, *Molecular Phylogenetics and Evolution* 2009, *Diversity and Distributions* 2011), plus 2 other co-authorships (*Molecular Ecology Resources*, *Risk Analysis*). IAGLR 2005 scholarship. NSF Deep Fin Travel award to Russian Academy of Sciences 2008. Present: USGS Scientist, Gainesville, FL.
- Oswaldo Jhonatan Sepulveda Villet, Ph.D. 2011. The University of Toledo. Dissertation: *Population genetic structure and biogeographic patterns in the yellow perch *Perca flavescens**. Oral presentations: Lake Erie Yellow Perch Task Force, Great Lakes Fishery Commission, Sigma Xi conferences (Best paper award), IAGLR, ASIH, AFS (one of 20 selected to compete for best paper). Posters: Ohio Division of Wildlife, IAGLR. Lead author of 3 papers with Stepien (*J. Great Lakes Research* 2009, *Canadian J. Fisheries and Aquatic Sciences* 2011, *Molecular Ecology* 2012). 4 co-authors with Stepien (*Trans. Amer. Fish. Soc.*, *Molecular Ecology*, *Great Lakes Commission*). IAGLR scholarship. NSF Gk-12 fellow, 2008-10. NOAA Sea Grant Knauss Fellow 2012, Washington, D.C. 2013: ARS USDA Postdoctoral Researcher, Univ. Wisconsin, Milwaukee. Current: Asst. Professor of Aquaculture. University of Wisconsin.
- Joshua E. Brown, Ph.D. 2009. Dissertation: *Genetic strategies of invasive mussels and gobies in the Great Lakes*. The University of Toledo. Poster presentations at Risk Analysis of Invasive species conference, Ohio Division of Wildlife, Aquatic Invasive Species Conference. Talk presentations for Ecosystem Research ERF, Sigma Xi meetings, IAGLR (Best paper award), ASIH, Ohio Division of Wildlife, Ohio Academy of Sciences, American Fisheries Society (Selected as one of 20 to compete for best student paper award). Lead author of 3 papers published with Stepien (*Molecular Ecology* 2008, 2009, *Biological Invasions* 2010), and 4 others as co-author (*J. Great Lakes Res.* 2011, *Risk Analysis* 2005, *Molecular Ecol. Res.* 2008, 2011). Awarded IAGLR scholarship in 2006. 2009-10 NOAA Sea Grant Knauss Fellow, Washington, D.C. Present: Employed by NOAA Sea Grant Research Office, Washington, D.C.

Graduated Ph.D. Students, Continued

Joseph E. Faber, Ph.D. 1997. Case Western Reserve University. *Dissertation: Population genetics, biogeography, and systematics of walleye*. 5 research presentations, 3 publications from Ph.D. dissertation co-authored with Stepien, 2 as lead author (*Mol. Phyl. Evol.* 1998, *Mol. Ecol.* 1998, *Mol. Syst. Fishes* 1987). Presently: Associate Professor at Ohio University, Lancaster branch campus, OH.

M.S. Thesis Students Advised by Stepien, Graduated

- Timothy Sullivan, M.S. 2013. The University of Toledo. Thesis: *Temporal and spatial genetic patterns among yellow perch spawning populations*. Talk research presentations at American Fisheries Society annual conference, Seattle (selected to compete for best paper award), Intern. Assoc. for Great Lakes Research annual conference, Sigma Xi, posters at Ohio Fish and Wildlife Assoc. NSF Gk-12 fellow. Two papers as lead author with Stepien: *Journal of Great Lakes Research* (2014) & *Transactions of the American Fisheries Society* (2015). Now: Ph.D. candidate at University of Louisiana, Lafayette.
- Jo Ann Banda, M.S. 2011. The University of Toledo. Thesis: *Temporal and spatial genetic patterns among walleye spawning populations*. Talk research presentations at Intern. Assoc. for Great Lakes Research annual conference, Sigma Xi, Ohio Academy of Sciences, Great Lakes Fishery Commission, posters at Ohio Fish and Wildlife Assoc. NSF Gk-12 Fellow. Publication co-author with Stepien (*Trans. Amer. Fish Soc.* 2012). Now: Works for US Fish and Wildlife Service, Columbus, OH
- Amanda Haponski, M.S. 2007. The University of Toledo. Thesis: *Population genetics and divergence patterns of greenside darters*. Talk research presentations at Sigma Xi, Ohio Division of Wildlife Geological Society of America, IAGLR, ASIH. Lead author of 2 papers published (co-authored with Stepien): *Journal of Great Lakes Research* (2008), *Journal of Fish Biology* (2009). Later Completed Ph.D. in Stepien's lab (2013). Now: postdoc at University of Michigan.
- Jennifer Skidmore, M.S. 2000. Case Western Reserve University (co-sponsored with Dr. Christopher Cullis). Thesis: *Population genetics and systematics of dreissenid mussels using DNA markers*. National Fish and Wildlife Fellowship under Stepien, 2 talk research presentations with Stepien, 1 publication co-authored with Stepien. Presently: NOAA, Washington D.C.
- Alison K. Dillon, M.S. 1998. Case Western Reserve University. Thesis: *Comparative population genetic strategies of two invasive fishes in the Great Lakes*. National Fish and Wildlife Foundation Fellowship 1997-8. 1 research presentation, 5 publications co-authored with Stepien including 2 from thesis. Employed as a research associate at Cleveland Clinic.
- Allyson N. Hubers, M.S. 1998. Case Western Reserve University. Thesis: *Variation in the mitochondrial DNA 16S rDNA gene in Dreissena, Mytilopsis, and Corbicula mussels*. 2 research presentations, 3 publications co-authored with Stepien including one from thesis. Employed by Novagen biotech company, Madison, WI.
- Mark D. Chandler, M.S. 1996. Case Western Reserve University. Thesis: *Population variation in DNA sequences of the ruffe in Great Lakes versus European populations*. Awarded NOAA Knauss Congressional Fellowship, Washington, D.C., 1996. Publication co-author with Stepien. Presently: Employed by NOAA, Washington, D.C.

Visiting International Graduate Research Students with Stepien

- Shotaro Hirase, M.S., Ph.D. student. Summer-fall 2011. From Marine Field Science Center, Graduate School of Agriculture, Tohoku University, Japan. *Temporal population genetics of the round goby*.
- Gokan Kalacyi, M.S. 2010-11. From Molecular Biology and Genetic Lab, Department of Aquaculture, Faculty Of Fisheries, Rize University, Turkey. *Evolutionary relationships of dreissenid mussels*, Publication with Stepien.
- Vasily Boldyrev, M.S. fall 2006. From Volgograd, Russia. Sponsored by Stepien's NSF grant. *Morphological systematics of neogobiin gobies*. Publication with Stepien.
- Fabio Lobato, M.S. student. Summer 2008. Brazil. *Molecular systematics of blennioid fishes*. Sponsored by NSF Deep-fin project.

RESEARCH ADVISOR EXPERIENCE, Continued

Carol A. Stepien

Undergraduate Research Students Sponsored (N=43 total, 4 at present)

- Research Experiences for Undergraduates NSF Program, Lead PI. 2015-2018. Lead 10-11 each summer.
- Hannah Scheppler, B.S. student 2016-present. *Environmental DNA and detection of invasive fishes in bait shops*. (supported by NSF REU and USEPA grants to Stepien)
- Devon Eddins, B.S. student 2013-2016. *Population genetics of the invasive ruffe fish*. (NSF REU).
Completing research study and publication as lead-author, co-authored with Stepien.
Research presentations 2016 at ICAIS, IAGLR, Midwest Grad. Symposium, Ohio Res. Review.
Now: Ph.D. student at University of South Carolina.
- Shelby Edwards, B.S. student 2015-16.. Field & lab work in Stepien lab. *Fish virus molecular ecology*.
- Lola Masenberg, B.S. student 2013-present. *Phylogenetic and biogeographic relationships of the Myxodin Clinidae: An egg laying relict fish group*. Completing publication with Stepien.
- Aaron Lucius, B.S. student 2013-14. University of Toledo. *DNA sequencing of fish taxa*.
- Susanne Karsiotis, B.S. student, 2011-13. University of Toledo. Funded through NSF URM (Undergraduate Research and Mentoring). *Genetic structure and biogeography of the smallmouth bass across North America, based on two genomes*. Publication as lead author, with Stepien as co-author, from previous project (*J. Great Lakes Research*). Another in review.
- Bevin Blake, B.S. student from Mt. Union College working in Stepien Lab at University of Toledo. 2012-14. Funded through USDA grant. Completing walleye study of Cattaraugus Creek (2014 publication as coauthor, with Stepien). Current: M.S. student E. Carolina University.
- Hillary Dean, B.S. student, 2010-12. University of Toledo. Funded through NSF URM (Undergraduate Research and Mentoring). *Fifteen years of genetic profiling of walleye in Cattaraugus Creek, a Lake Erie tributary*. Presented at Sigma Xi conference and Ohio Fish and Wildlife Management conference (posters). Ohio Environmental Scholarship Awardee (2011-12). Ohio Chapter American Fisheries Society Partnership Award for Undergraduate Student Research (2012). Co-authored publication with Stepien. Current: M.S. student Delaware State University.
- Emily Sopkovich, B.S., 2007-08. University of Toledo through NSF REU supplement. *Genetic changes in invasive round goby populations over the time course of an active invasion*. Ohio Academy of Sciences Scholarship with the Ohio EPA 2007-8. Talk research presentations at Sigma Xi (2007), Ohio Academy of Sciences (2008), International Assoc. Great Lakes Research (2008). Completed M.S. graduate program at Ohio State University, 2013, now a lab technician.
- Jennifer Ohayon, B.S., 2006. University of Toledo through NSF REU program (from University of Toronto). *Population genetics of the racer goby*. Publication with Stepien in *Journal of Fish Biology*, 2007. Talk research presentation American Society of Ichthyologists and Herpetologists. Ph.D. program at University of California Santa Cruz, 2013.
- Ian Hoffman, 2006-07. University of Toledo, through NSF REU project supplement. *Population genetics and biogeography of the monkey goby based on mtDNA sequences and microsatellites*. Poster presentation at Sigma Xi conference.
- Dianna Brandon, 2005-06. University of Toledo. Sponsored through NSF REU program and US EPA grant. *Microsatellite DNA variation in zebra mussel invasive and native populations*.
- Amanda Haponski, B.S., Summer 2004. Sponsored through NSF REU program. *Genetic divergence of greenside darters*. Publication in *Journal of Great Lakes Research* from project. Entered Stepien lab as M.S. student fall 2005, completed Ph.D. in 2013. Now a postdoctoral researcher.
- Melissa Jedlicka, B.S., 2003-4. Biology, Cleveland State Univ. Sponsored through NSF REU program. *A comparative genetic analysis of rainbow darters in three rivers, with analysis of glaciation patterns*. Talk research presentation, Publication co-author with Stepien (*Journal of Fish Biology*, 2007). Now research assistant at Cleveland Clinic.
- Sergei Shirman, B.S., 2003. Chemistry, Cleveland State Univ. *Dreissenid mussel systematics*. Talk research presentation at the American Chemical Society meeting, Oberlin, Ohio. Publication with co-author Stepien (*Aquatic Invasions*, 2003).
- Jenny Giboney, B.S. 2003. Biology, Cleveland State Univ. Sponsored through NSF REU program. *Population genetics of rainbow darters in northeast Ohio*. Talk research presentation.

RESEARCH ADVISOR EXPERIENCE, Continued

Carol A. Stepien

Undergraduate Research Students Sponsored, Continued

- Clifford D. Taylor, B.S., 2001-2003. Chemistry, Cleveland State Univ. *Walleye and dreissenid mussel genetics*. 4 publications co-authored with Stepien. Continued working as the research technician in Stepien lab for several years.
- Kora Dabrowska, B.S., 1999-2002. Biology, Case Western Reserve University. *Zebra mussel invasion genetics*. 3 publications co-authored with Stepien, Talk research presentation 2002 at Ohio Academy of Sciences annual conference. Completed Ph.D. at Ohio State University, now works for NOAA, Washington, D.C.
- 17 undergraduate student researchers sponsored at Case Western Reserve University, including six summer research students funded by grants from the Howard Hughes Research Foundation to the Department of Biology. (6 published with Stepien: J. Skidmore, A.B. Bargmeyer, K. Dabrowska, A. Patterson, K. Chase, A. Dillon).
- 4 undergraduate research students sponsored at Scripps Institution of Oceanography (3 published with Stepien: H. Phillips, J. Adler, P. Mangold).
- 2 undergraduate research students at University of San Diego (both published: M. Glatke, K. Fink).

RESEARCH MENTORSHIP

High School Teachers

- NSF Gk-12 Program Principal Investigator, \$3 million, 8 teachers, 2008-2015. *Graduate fellows in high school STEM education: An environmental science learning community at the land-lake ecosystem interface*. Teachers: Paulette Cole and Timothy Bollin (Toledo Early College High School); Jahnine Blosser (Scott High School); Michelle Bogue (Sylvania Northview High School); David Bourland (Bowsher High School); Caine Kolinski (Clay High School); Kathleen Singler and Jeremy Nixon (Ottawa Hills High School), Wendy Wilson (Start High school); Ann Hajibrahim (Central Catholic High School); Todd Aselyne (St. John's High School). Graduate students partner with teachers to mentor science fair projects, oversee special projects, and mentor students to enter STEM careers.
- Timothy Bollin, M.S. Toledo Early College High School, Toledo, Ohio. *Genetic studies of darters in northwest Ohio*. NSF-sponsored Research Experiences for Teachers (RET) award to implement molecular population genetics study in urban minority high school classrooms. Presentations: Talk research at Ohio Academy of Sciences, International Association for Great Lakes Research. Publication with Stepien and her graduate student (*Journal of Fish Biology*).
- Thomas Marth, M.Ed. *Genetic divergence in log perch above and below a historic lowhead dam on the Cuyahoga River*. Summer research project sponsored through the President's Initiative Grant funding program at Cleveland State University. Publication with Stepien. Presented at Woodlake Environmental Conference, Cuyahoga Valley National Park and poster at Society for Study of Evolution annual meeting in Colorado.

High School Research Students (N=12)

- Ms. Susanne Karsiotis, Clay High School, *Salinity tolerance of the exotic round goby: Experimental implications for seawater ballast exchange*. 1st place award at Northwest Regional Science Fair, \$4,000 scholarship, Ohio State competition award. 1st place best environmental poster award at Lake Erie Center NSF Gk-12 competition. Project is published (*Journal of Great Lakes Research*). Became: University of Toledo undergraduate researcher in Stepien lab.
- Mr. Jerriell Hall, Brush High School, summer project on darters.
- Ms. Bailey Vance, Hathaway Brown Upper school senior research project on darters.
- Mr. Jay Harburger, Brush High School, senior project on smallmouth bass.
- Ms. Stephanie Haase, Mentor High School senior research project.
- 5 at Case Western Reserve University, including 2 through the National Science Found. Young Scholars Program; and 3 others from University School, Beachwood High, and Euclid High.
- 2 at Scripps Institution of Oceanography, for whom Stepien received a Scripps Director's award.

Ph.D. Dissertation Committees

- Mr. Qi (Bruce) Ko (Dr. Douglas Leaman, Biology, Univ. of Toledo) 2014-2016 (graduated).
Ms. Breanna Caton (Dr. Von Sigler, University of Toledo) 2014-present.
Dr. Julie Horvath, Department of Genetics (Dr. Evan Eichler, N.I.H. Human Genome Project), Case Western Reserve University, Ph.D. qualifying Examination committee, August 1999.
Dissertation defense committee, September 2003.
Dr. Debra Mathews, Department of Genetics, Case Western Reserve University and John Hopkins University, (Dr. Aravinda Chakravarti's lab, N.I.H. Human Genome Project). Ph.D. qualifying Examination committee, June 1999, Dissertation defense August 2002.
Dr. Kimberly Donaldson, University of South Florida, Ph.D. qualifying examination committee, 1994, Ph.D. dissertation defense committee, March 2000.
Dr. Christopher BurrIDGE, University of Tasmania, Australia, Ph.D. dissertation defense, 2000.

M.S. Thesis Committees

- Mr. Wade Weaver, Biology Department, Univ. Toledo (Dr. Douglas Leaman) 2016-present.
Mr. Adam Russell, DES Dept., Univ. Toledo (Dr. Daryl Moorhead) 2012-2014 (graduated).
Mr. Adam Pore, Biology Department, Univ. Toledo (Dr. Douglas Leaman) 2011-2012 (graduated).
Ms. Kristen DeVanna, DES Department, Univ. Toledo. (Dr. Christine Mayer) 2005-2006 (graduated).
Mr. Brian Elkington, DES Department, Univ. Toledo. (Dr. Christine Mayer) 2005-2006 (graduated).

RESEARCH EXPEDITIONS AND FIELD RESEARCH EXPERIENCE

- Research trip to Australia to work on systematics of clinid fishes (with Australian Museum, Sydney; University of Tasmania; Victoria Museum, Melbourne, University of Melbourne). 2013.
Research trip to United Arab Emirates regarding fishery resources and stock structure in the Arabian Gulf, with their EPA. 2013.
Principal investigator of research fish collections in the Black and Caspian Seas. Funded by National Science Foundation for 2005 (Azerbaijan and Russia) and 2008 (Poland and Russia).
Principal investigator of river and lake fish collections in Ohio and Michigan (with Ohio EPA and several research students), 2003-present.
Principal investigator of research collection for mussels and fishes and lecturing trip to Ukraine and Black Sea, Sea of Azov, and Crimea region, 2002 (led team of 5 scientists and graduate students).
Principal investigator of research collection and lecturing trip to Madeira, Portugal.
Principal investigator of research collecting trip to Japan. The University of Tokyo, Hakkodate University, and Kochi University. Funding by the National Research Council.
Principal investigator of research expedition to Chile to study fish genetics, ecology, and biogeography. Funded by the University of California Research Expeditions Program.
Principal investigator of research expedition to Argentina to study fishery genetics and biogeography. Funded by the National Geographic Society.
Experienced Scuba Diver and Underwater Researcher - over 600 logged research dives.
Research cruises and expeditions with Scripps Aquarium, UCSD to Mexico, fishery genetics.
Principal investigator of research on intertidal and kelp forest fish population genetics in Mexico.
Research Scientist, Central America, Costa Rica, Panama, and Mexico; intertidal fish & invertebrate diversity and ecology. Funded by Charles Lindberg Foundation.
Research Scientist, Midwater trawling cruises to Mexico and California; fish diversity.

SERVICE

Carol A. Stepien

University of Toledo Service–Current

DLAR (Department of Laboratory Animal Resources) Search Committee, for new lead Veterinarian 2016.
University of Toledo Water Task Force. Chair of Committee on Land Use-Water Quality 2014-present
<http://www.utoledo.edu/commissions/water-task-force/index.html>
Sigma Xi Scientific Society, University of Toledo Chapter, Chapter President 2013-2015, cont. 2016.
http://www.utoledo.edu/nsm/lec/sigma_xi/ Led Faculty & Student Awards, Implemented Science Cafes.
Represented UT at National conference in Kansas City 2015. Coordinated membership, activities, public relations, reporting (2013-2016).
University of Toledo President's Commission on the Ottawa River (on-campus River Restoration 2004-present <http://www.utoledo.edu/commissions/river/index.html>)
Department of Environmental Sciences Graduate Student Recruitment committee 2010-present
Midwest Graduate Symposium Research Presentation Judge and Sigma Xi Award Presenter 2015, 2016.

University of Toledo Service History

Committee on University of Toledo Research Vision
Search Committee and Vision for Dean of College of Education
Research Advisory Board of the University Office of Inter-Institutional Collaboration
Chair of Local Committee for the 2009 International Association for Great Lakes Research
Annual Research Conference held at the University of Toledo (noted as one of their best, ever)
National Science Foundation ADVANCE team
Strategic Plan Research and Intellectual Property Work Group
Chair of Faculty Search Committees, Dept. Environmental Sciences, Univ. Toledo, Limnology/ Pelagic Ecology (resulted in two new faculty hires, Dr. Thomas Bridgeman & Dr. Ann Krause)
Faculty Search Committee, DES Department, Watershed Ecology (hire of Dr. Jon Bossenbroek)
Faculty Search Committee, Engineering School (Chemical and Civil Departments), Sustainability position (hire of Dr. Youngwoo Seo)
Sigma Xi Research Conference Judge (several years)

Professional Service–Current

Aquatic Ecosystems Editor (new), Ecological Processes, <http://ecologicalprocesses.springeropen.com>
Genetics Editor, Biological Invasions. 2009-present
Special Issues (2012-current), Genetics Editor (2002-12). Journal of Great Lakes Research. Editor's Awards 2007, 2011
Editorial Board, Molecular Phylogenetics and Evolution. 1998-present
NOAA CILER Cooperative Institute for Limnology & Ecosystems Research (University of Michigan) Board of Directors. 2011-present
National Center for Water Quality, Board of Directors, Heidelberg University. 2012-present

Professional Science Service Record

NSF Grant Review Panels: Integrated Organismal Systems, Systematic Biology, Evolutionary Genetics, Biological Oceanography, Sustainability Research Networks, 1998, 2005, 2010, 2011, 2012, 2015
Coordinator, Workshops for Ohio Division of Wildlife on DNA Markers for Lake Erie Fishes. 30-50 participants, 2002, 2005, 2008, 2010
International Association of Great Lakes Research Conference chair for 2009 held at University of Toledo
AAAS review panel. Aquatic ecology applications and technology. 2008
Board of Directors, International Association for Great Lakes Research (IAGLR) 2004-07
Co-chair Outreach Committee 2005-07. IAGLR Service Award 2007
Mentoring and Advisory Panel, "Assessment of EPA ORD's Recruitment and Retention of Women and Minority Scientists and Engineers in its Postdoctoral Fellows Program". National Council for Science and Environment, Washington D.C.
USGS Global Change National Grant Review Panel, Washington, D.C.
Intel/ISEF International Science and Engineering Grand Awards Fair Judge
Great Lakes Aquatic Ecosystem Research Consortium, Ohio Sea Grant Program meeting

SERVICE RECORD, Continued

Carol A. Stepien

Professional Science Service Record, Continued

Local committee for International Association for Great Lakes annual meeting. 400 scientists (organized banquet, symposium on invasive round goby, 2 research sessions, luncheon)
University representative for Great Lakes Aquatic Ecosystem Research Consortium at Case Western Reserve University for 5 faculty in Biology, Geology, and Engineering, Coordinated conference.
National Science Board Committee member on Scientific Research at Universities, National Academy of Sciences, Case Western Reserve University

Past University Service Record

Co-Principal Investigator and Organizer for Summer National Science Foundation Research Experience for Undergraduates program.
Co-Principal Investigator and Organizer for Summer Research Experience Program for Secondary School Teachers, funded by the CSU President's Initiative Award.
Associate Program Manager for Program of Excellence in Environmental Risk Analysis, reporting to the U.S. Environmental Protection Agency, CSU, 2001-2004. Helped to supervise program, program reporting, coordination, 10 professors & projects
Advisory Board for CSU Automated DNA Analysis Joint Facility
Conference Chair, Environmental Risk Assessment Conference & workshops, CSU.
Graduate Affairs Committee, Dept. of Biology, Case Western Reserve University.
Seminar Committee, Department of Biology, Case Western Reserve University.
Environmental Priorities project Committee, Case Western Reserve University.

Education and Mentoring Service Record, Current:

Mentoring and shadowing of Westside Montessori 7th-8th grade students, 2004-present (2 per year, each spring for one week). Students regularly comment that it's their school's best assignment!
Mentoring High School students from St. John's, Cardinal Strich & Notre Dame High Schools, 2005-present
High School Teachers in Student Watershed Watch, 2008-present. (now with T. Bollin, Toledo Early College High School & Michelle Bogue, Sylvania Northview High School)
Mentoring Program for Graduate Students in Science, American Fisheries Society & American Society of Ichthyologists and Herpetologists 1997-present (annually at conferences and beyond)

Education and Mentoring Service Record, Past:

School Outreach Programs lectures on *Endangered species* and *Marine biology career* for Moreland Hills Elementary School, Orange School District
Mentoring Program for High School Science Research, Mentor High School
JASON Science Project Site Teacher Education Workshop Coordinator, CWRU. Research Explorations In Extreme Environments, Coral Reef Project workshop coordinator elementary through high school teachers (85 participated)
NSF Excel Mentoring Program for middle school girls. Sponsored 8th grade students
Beachwood High School Science Mentoring Program. Sponsored senior student
CWRU Undergraduate Biology Society invited panelist for discussions on Science and Religion
NSF Excel Science and Engineering summer Program for young women. Middle school plan and conduct laboratory activities; slide presentations on fish behavior
Invited Panel Speaker for Women in Science *Combining Children and Career*; American Society of Ichthyologists and Herpetologist
Mentoring Program for Women in Science, Euclid Senior High School
National Science Foundation Young Scholars Program Sponsor for High School Students in Science, Invited Speaker, Ohio Science Fair Project Sponsor