



Dr. Peter J. Park

Assistant Professor of Biology

Dept. Biology & Chemistry
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Education

PhD Dept. Ecology & Evolution, Stony Brook University
BS Stony Brook University

Areas of Specialization/Expertise

Evolutionary ichthyology
Comparative neuroanatomy of fishes
Fish cognition

Current Areas of Research

Ecological diversification of brain and behavior in Alaskan threespine stickleback fish
Science education research
Application of inquiry-based teaching methods in science

Courses Taught

General Biology I, II
Survey of the Life Sciences
Human Biology
Ecology
Phage Hunters Advancing Genomics and Evolutionary Science (PHAGES - HHMI) – *co-taught with Dr. Jacqueline M. Washington.*
The Living World (non-majors intro bio)
Vertebrate Evolution

Membership in Professional Societies

American Association for the Advancement of Science (AAAS)
Association for Biology Laboratory Education (ABLE)
National Center for Science Education (NCSE)
The American Scientific Affiliation (ASA)

Research & Publications

Publications

Articles and Chapters

- Park, P.J.**, W.E. Aguirre, D.A. Spikes, and J.M. Miyazaki. 2013. Landmark-based geometric morphometrics: what fish shapes can tell us about fish evolution. *Tested Studies for Laboratory Teaching, Proceedings of the Association for Biology Laboratory Education* 34: 361-371.
- Park, P.J.** 2013. Spatial learning ability of the threespine stickleback (*Gasterosteus aculeatus*) in relation to inferred ecology and ancestry. *Evol. Ecol. Res.* 15: 213-239.
- Park, P.J.**, I. Chase, and M.A. Bell. 2012. Phenotypic plasticity of the threespine stickleback *Gasterosteus aculeatus* telencephalon in response to experience in captivity. *Curr. Zool.* 58: 189-210.
- Park, P.J.** 2011. Variation of spatial strategies and the telencephalon of the threespine stickleback (*Gasterosteus aculeatus*) in relation to inferred ecology. *Ph.D. dissertation*. Stony Brook: Stony Brook University.
- Park, P.J.** and M.A. Bell. 2010. Variation of telencephalon morphology of the threespine stickleback (*Gasterosteus aculeatus*) in relation to inferred ecology. *J. Evol. Biol.* 23: 1261-1277.
- Nomakuchi, S., **P.J. Park**, and M.A. Bell. 2009. Correlation between exploration activity and use of social information in threespine sticklebacks. *Beh. Ecol.* 20: 340-345.
- Bell, M.A., J. Stewart, and **P.J. Park**. 2009. The world's oldest fossil threespine stickleback fish. *Copeia* 2: 256-265.

Book Reviews

- Park, P.J.** 2011. Review of *Do Fish Sleep?*, by J.D. Weis. *Quart. Rev. Biol.* 87: 360-361.
- Park, P.J.** 2008. Review of *The Fish Cognition and Behavior*, by C. Brown, K. Laland, and J. Krause. *Quart. Rev. Biol.* 83: 398-399.
- Park, P.J.** 2007. Review of *The Evolving Brain: The Mind and the Neural Control of Behavior*, by C.H. Vanderwolf. *Quart. Rev. Biol.* 82: 305.

Science Education

2012 Co-developer, with Laura Bonetta, of content and instructional design of the **Howard Hughes Medical Institute (HHMI) Stickleback Evolution Virtual Lab**. My other roles on this project included: Program Design, Scientific Consultant, Writer, Videography, Photography. (URL: <http://media.hhmi.org/biointeractive/vlabs/stickleback/index.html>)

Conference, Colloquium, and Symposium Presentations

Oral Presentations

- Park, P.J.** 2013. Teaching evolution in a Christian college: Worries, wants, and hopes? *Evangelical Theological Society - Northeast Section Annual Meeting*. Alliance Theological Seminary, Nyack College, Nyack, NY.
- Park, P.J.** and M.A. Bell. 2012. Spatial learning in Alaskan *Gasterosteus aculeatus*: A comparison of benthics, limnetics, and sea-run populations. *International Conference on Stickleback Behavior and Evolution*. Islandwood, Bainbridge Island, Washington.

- Park, P.J.**, I. Chase, and M.A. Bell. 2011. The relationship between telencephalon morphology and spatial learning of the threespine stickleback fish (*Gasterosteus aculeatus*) in relation to inferred ecology. *J.B. Johnston Club Annual Meeting*. Embassy Row Hotel, Washington, D.C.
- Park, P.J.** and M.A. Bell. 2011. Ecological diversification of spatial learning and forebrain morphology in Alaskan threespine stickleback fish. *Environmental Health and Health of the Environment Conference*, St. Francis College, New York.
- Park, P.J.** 2008. Interpopulation variation in gross forebrain morphology and cognitive map use in ecologically contrasting populations of threespine stickleback fish. *Ecology and Evolutionary Ethology of Fishes*. Boston University, Boston, Massachusetts.
- Park, P.J.** 2006. Multiple learning strategies and forebrain and optic lobe size and shape variation in ecologically contrasting populations of Alaskan threespine stickleback. *Evolution*. Stony Brook University, Stony Brook, New York.
- Park, P.J.** and M.A. Bell. 2006. Multiple learning strategies and forebrain size and shape variation in ecologically contrasting populations of Alaskan threespine stickleback (*Gasterosteus aculeatus*). *International Conference on Stickleback Behavior and Evolution*. University of Alaska, Anchorage, Alaska.

Poster Presentations

- Park, P.J.** and M.A. Bell 2010. Spatial learning and forebrain differences in field-caught and lab-reared threespine stickleback fish (*Gasterosteus aculeatus*): implications for hatchery-reared fish survival in the wild. *Metropolitan Association of College and University Biologists*. Molloy College, Rockville Centre, New York.
- Park, P.J.** 2010. Spatial learning and forebrain differences in field-caught and lab-reared threespine stickleback fish (*Gasterosteus aculeatus*): implications for hatchery-reared fish survival in the wild. *New York Marine Sciences Consortium*. Dowling College, Oakdale, New York.
- Park, P.J.**, S. Nomakuchi, and M.A. Bell. 2005. Interpopulation variation of spatial learning and forebrain shape in threespine stickleback (*Gasterosteus aculeatus*). *Joint Meeting of Ichthyologists and Herpetologists*. Tampa, Florida.
- Gorby, H.E., D.A. Tata, D.P. McCloskey, **P.J. Park**, and B.J. Anderson. 2003. Chronically elevated glucocorticoids produce transient anxiety and reduced activity, but do not induce anhedonia. *Society for Neuroscience Conference*. New Orleans, Louisiana.

Invited Seminars

- Park, P.J.** 2013. Understanding evolution: How do we encourage dialogue? *Nyack College Colloquium Series* (March 20). Nyack College, Nyack, NY.
- Park, P.J.** 2013. Seining in Nyack: A genuine ecology experience for non-science majors. *Youth Educational Seining Programs (YES) Consortium* (March 15). St. Francis College, Brooklyn, NY.
- Park, P.J.** 2012. Fish solving spatial tasks in the wild: A case of ecological divergence of brain and behavior in Alaskan threespine stickleback (*Gasterosteus aculeatus*); plus a brief intro to the HHMI Stickleback Virtual Lab. *School of Science Colloquium Series* (November 13). The College of New Jersey, Ewing, NJ.
- Park, P.J.** 2011. The ecology and evolution of spatial learning in threespine stickleback fish (*Gasterosteus aculeatus*). *Provost's Graduate Student Lecture Series* (March 16). Stony Brook University, Stony Brook, New York.

Workshops Given

- Park, P.J.** and D. Liu. 2013. In-class applications of the HHMI Stickleback Evolution Virtual Lab. *Association for Biology Laboratory Education (ABLE) Conference*. Calgary University, Calgary, Alberta, Canada.
- Park, P.J.** and M.A. Bell. 2012. Introduction to the HHMI Stickleback Evolution Virtual Lab. *International Conference on Stickleback Behavior and Evolution*. Islandwood, Bainbridge Island, Washington.
- Park, P.J.** 2012. Landmark-based geometric morphometrics: what fish shapes can tell us about fish evolution. *Association for Biology Laboratory Education (ABLE) Conference*. University of North Carolina Chapel Hill, North Carolina.
- Park, P.J.** and W. Yan. 2012. How to construct a professional conference poster for scientific meetings. *First Annual Nyack College Undergraduate Student Research Conference*. Nyack College, Nyack, NY.
- Park, P.J.** 2011 - Invited Teaching Faculty. Understanding evolution through knowledge of the stickleback: Lessons on natural selection and speciation. *BioLogos Workshop: Biology by the Sea II*. Point Loma Nazarene University, San Diego, California.

Student Presentations

- Curry, R.E., M. Ahn, H. Beezley, J. Bryant, J. Buapim, L. Carlin, D.B. Charles, L. Curtis Jr, T. DaSilva, J. Hackel, J. Hacking, C. Hulass, D. Jeanty, C. Julien, D. McCleod, C. McComb, Y. Morgan, I. Pena, J. Schaller, M. Teti, V. VanTongel, T. Vester, D. Zollner, **P.J. Park**, and J.M. Washington. 2013. Mycobacteriophage MichelleMyBell contains novel genes to cluster N involved with DNA recombination and repair. *2013 SEA-PHAGES Symposium*, Janelia Farms, Ashburn, Virginia.

Academic and Editorial Experience

Reviewer for *Animal Behaviour*, *Biology Letters*, *Agricultural Science Research Journal*

Other Academic Contributions

- 2012 Panelist. How do we advance Christian scholarship in the sciences? *Nyack College Faculty Assembly*. Alliance Theological Seminary, Nyack College, Nyack, New York.
- 2009 Break-Out Group Participant. Cooperation and tension between science and religion. *Common Ground: Science and Religion in Dialogue for a Sustainable Future Symposium*. Columbia University, New York, New York.
- 2012 Science Fair Judge. Science, Inventions and Technology Exhibition Conference (Pearl River, NY)
- 2011 Science Fair Judge. Long Island Science & Engineering Fair (LISEF)

Awards, Fellowships, and Grant Support

Awards

- Junior Faculty of the Year. 2013. College of Arts & Sciences, Nyack College
- First Year Faculty Award. 2012. College of Arts & Sciences, Nyack College
- Outstanding Teaching Assistant Award. 2011. Dept. Ecology & Evolution, Stony Brook University
- Best Doctoral Student Poster. 2010. Metropolitan Association of College and University Biologists, Molloy College
- Best Graduate Student Poster. 2010. New York Marine Sciences Consortium, Dowling College
- Departmental Service Award. 2009. Dept. Ecology & Evolution, Stony Brook University
- Cedar Brook Award (Best Student Oral Presentation). 2006. Dept. Ecology & Evolution, Stony Brook University

NSF Pre-Doctoral Fellowship Honorable Mention. 2004.
Valedictorian. 2003. Stony Brook University

Funding

Roberta Williams Laboratory Teaching Initiative Grant. 2012. Association for Biology Laboratory Education

Dean's Fellowship for Graduate Students. 2008. Stony Brook University

Sigma Xi Student Travel Grant. 2006. Stony Brook University

Robert Sokal Award. 2003. Dept. Ecology & Evolution, Stony Brook University. For research involved in the application or development of statistical analyses in the biological sciences.

Media / Press

Seward Journal: Stern, G. (June 20, 2012). Seward sticklebacks surprise biologists. pgs. 1,14. Print. Seward, Alaska.

The Forum (Nyack College student paper): Scheffel, E. (April 5, 2012). Ecology class: Exploring living and non-living things around Nyack. pg. 6. Print. Nyack, New York.