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**Education:** Harvard University, Cambridge, MA.  
Department of Organismic and Evolutionary Biology  
4<sup>th</sup> year Ph.D. candidate

Wesleyan University, Middletown, CT.  
B.A. Biology 1996 *Magna Cum Laude*

**Publications:**

Liao, J. C., Beal, D. N., Lauder, G.V., and Triantafyllou, M.S. (2003). The Kármán gait; novel kinematics of rainbow trout swimming in a vortex street. *J. Exp. Biol.* 206, 1059-1073.

Liao, J. C. (2002). Swimming in needlefish: anguilliform locomotion with fins. *J. Exp. Biol.* 205, 2875-2884.

Liao, J. and Lauder, G.V. (2000). Function of the heterocercal tail in white sturgeon: flow visualization during steady swimming and vertical maneuvering. *J. Exp. Biol.* 203, 3585-3594.

**Published Abstracts:**

Liao, J.C. (2003). How trout interact with Kármán vortices behind a cylinder: insights from kinematics, electromyography, and flow visualization. SICB Final Program and Abstracts, 15.2.

Liao, J., Beal, D. N., and Lauder, G.V. (2002). Novel body kinematics of a trout swimming in a von Kármán trail; can fish tune to vortices? *Comparative Biochemistry and Physiology, Part A* 132, A9.9.

Liao, J., Beal, D. N., Lauder, G.V., and Triantafyllou, M.S. (2002). Novel body kinematics of a trout swimming in a von Kármán trail; can fish tune to vortices? SICB Final Program and Abstracts, 42.5.

Liao, J. (2001). Locomotion in needlefish: anguilliform swimming with fins. SICB Final Program and Abstracts, 2.3.

Liao, J. And Lauder, G.V. (1999). Wake dynamics of the heterocercal tail in freely-swimming sturgeon *Acipenser transmontanus*. *American Zoologist* 39, 55A.

**Selected Presentations at National/International Meetings and Invited Talks:**

Energy capture in turbulent flows by Great Lakes fishes; insights from quantitative flow visualization (2003). Great Lakes Fishery Commission, Sea Lamprey Research Program Workshop, Michigan..

The Kármán gait; insights from kinematics, electromyography, and flow visualization (2003). Society of Integrative and Comparative Biology, Toronto, Canada.

The Kármán gait (2002). Division of Vertebrate Morphology Regional Meeting, Harvard University.

To surf or swim? How fish hold station via vortex exploitation (2003). University of Massachusetts.

Novel kinematics of a trout swimming in a vortex street (2002). University of Guelph; Society of Experimental Biology, University of Swansea, Wales; Society of Integrative and Comparative Biology, Anaheim, CA.

Locomotion in needlefish: anguilliform swimming with fins (2001). Society of Integrative and Comparative Biology, Chicago, IL.

Function of the heterocercal tail in sturgeon, *Acipenser transmontanus* (2000). American Society of Ichthyologists and Herpetologists, La Paz, Mexico.

Wake dynamics of the heterocercal tail in freely-swimming sturgeon, *Acipenser transmontanus* (2000). Society of Integrative and Comparative Biology, Atlanta, GA; Division of Vertebrate Morphology Regional Meeting, Brown University (1999).

**Professional Affiliations:**

- Society for Integrative and Comparative Biology
- Society for Experimental Biology
- American Society of Ichthyologists and Herpetologists
- American Fisheries Society

**Reviewer for:**

The Journal of Experimental Biology  
The American Fisheries Society

**Funding:**

- Harvard Graduate Student Council travel award (\$700)
- SICB Grant in Aid of Research Award (2001; \$1,000)
- ASIH student travel award (\$300)
- Putnam Expedition Grant, Harvard Museum of Comparative Zoology (2000; \$2,600)
- Bermuda Biological Station Grant in Aid of Research Award (2000; \$1600)
- Bermuda Biological Station for Research Scholarship (1999; \$2600)
- UC-Irvine Holcomb Scholarship for Marine Biology (1999; \$3000)

**Teaching/lectures:**

Bio 139 Vertebrate Paleontology. Invited lecturer. "The Evolution of Actinopterygian fishes." (Dr. Farish Jenkins).

Bio 121 Advanced topics in Vertebrate Physiology and Anatomy. Undergraduate/Graduate tutorial. Caudal and pectoral fin complex in Beloniform fishes.

Bermuda Biological Station for Research (2001). *Biology of Fishes* Teaching assistant/ Guest lecturer "Feeding mechanisms in ray finned fishes" (Dr. Bruce B. Collette).

Organization for Tropical Studies, Cabo Blanco (2001, 2002). *Tropical Field Biology*, Resource Faculty Member. "Fish Locomotion" and "The Diversity of Actinopterygian Fishes". (Dr. Deedra McClean).

\*Harvard University (1999, 2000, and 2003). *Patterns and Processes in Fish Diversity*. Teaching Fellow/ Guest lecturer "Amazonian Diversity", "Sensory Biology", "Electric World of Fishes." (Dr. Karel F. Liem).

Harvard University (1999). *Structure and Physiology of Vertebrates*. Teaching Fellow in Anatomy (Dr. Andrew A. Biewener).

\*Awarded Certificate of Excellence in Teaching, Derek Bok Center for Teaching and Learning (1999 and 2000)

**Leadership positions:**

- Graduate Student Representative, Department of Organismic and Evolutionary Biology, Harvard University 2002-2003.
- Foreign Student Representative, GSAS, Harvard University 2000-2002.
- Non-resident tutor in Biology: Dunster House Harvard University 2000-2002.

