JODIE L. RUMMER

Citizenship: American
Residency: Australia & USA
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EDUCATION:

Ph.D. in Zoology November 2010
University of British Columbia, Vancouver, B.C. CANADA
Dissertation Title: A novel mechanism for enhancing tissue oxygen delivery in teleost fishes
Major Advisor: Prof. Colin J. Brauner

M.S. in Biology June 2004
University of West Florida, Pensacola, FL USA
Thesis Title: Physiological and anatomical effects of swimbladder overexpansion and catastrophic decompression on red snapper, *Lutjanus campechanus*
Major Advisor: Prof. Wayne A. Bennett

B.S. in Marine Biology (honours) August 1999
University of West Florida, Pensacola, FL USA

A.S. in Biology (honours) May 1997
Lincoln Land College, Springfield, IL USA

RESEARCH INTERESTS:

Ecological, Evolutionary, and Conservation Physiology in Fish

- The physiology of, and performance indicators of stress, acclimation strategies
- Environmental adaptations related to O_2, CO_2 exchange, acid-base balance, and ionregulation
- Evolution of life history tactics, distribution patterns, and biogeography

AREAS OF SPECIALIZATION:

- Hyperbaric, thermal, O_2, CO_2, pH, water balance, & ionregulation performance assays
- Blood sampling, surgical techniques, O_2 & pH micro-sensing fiber-optic technology
- Addressing physiological questions in small organisms or at the tissue level
- Ichthyofaunal and habitat sampling, husbandry and experimental design
- Evolutionary reconstructions of physiological traits and phylogenetic comparisons

PUBLICATIONS:

CHAPTERS IN BOOKS:

29) **Rummer, J.L.**, Isom, L.L. 2014. Communication. In Pritchard, P. & Grant, C. (eds.), Success Strategies for Women in STEM: A Portable Mentor, 2nd edition. Elsevier (In press, accepted 31 January, 2014).
28) Darling, E. **Rummer, J.L.**, 2014. Social Media. In Pritchard, P. & Grant, C. (eds.), Success

Strategies for Women in STEM: A Portable Mentor, 2nd edition. Elsevier (In press, accepted 31 January, 2014).

27) **Rummer, J.L.**, 2014. Networking. In Pritchard, P. & Grant, C. (eds.), Success Strategies for Women in STEM: A Portable Mentor, 2nd edition. Elsevier (In press, accepted 31 January, 2014).
26) Brauner, C.J. and **Rummer, J.L.** 2011. Gas Transport and Exchange: Interaction Between O_2 and CO_2 Exchange. In: Farrell A.P., (ed.), Encyclopedia of Fish Physiology: From Genome to Environment, volume 2, pp. 916–920. San Diego: Academic Press. doi:10.1016/B978-0-1237-4553-8.00115-5
25) **Rummer, J.L.** Interacting factors affecting release mortality in red snapper with an emphasis on catastrophic decompression and swim bladder form and function. 2007. pp.123-144 *in* W.F. Patterson, III, J.H. Cowan, Jr., G.R. Fitzhugh, & D.L. Nieland, eds. Red Snapper Ecology & Fisheries in the U.S. Gulf of Mexico, American Fisheries Society Symp. 60, Bethesda, Maryland.

JOURNAL ARTICLES:

24) Heinrich, D.D.U., **Rummer, J.L.**, Morash, A.J., Watson, S-A., Simpfendorfer, C.A, Heupel, M.R., Munday, P.L. A product of its environment: The epaulette shark (*Hemiscyllium ocellatum*) exhibits physiological tolerance to elevated environmental CO_2. *Conservation Physiology* (accepted 3 Aug. 2014).
23) Bowden, A.J., Gardiner, N.M., Couturier, C.S., Stecyk, J.A.W., Nilsson, G.E., Munday, P.L., **Rummer, J.L.** 2014. Alterations in gill structure in tropical reef fishes as a result of elevated temperatures. *Comparative Biochemistry and Physiology - A* 175, 64-71. doi:10.1016/j.cbpa.2014.05.011
22) Killen, S.S, Mitchell, M.D., **Rummer, J.L.**, Chivers, D.P., Ferrari, M.C.O., Meekan, M., McCormick, M.I. 2014. Aerobic scope predicts dominance during early life in a tropical damselfish. *Functional Ecology* (Advanced online publication, 16 June 2014). doi:10.1111/1365-2435.12296
21) Munday, P.L., Cheal, A., Dixson, D.L., **Rummer, J.L.** Fabricius, K. 2014. Behavioural impairment in reef fishes caused by ocean acidification at CO_2 seeps. *Nature Climate Change* 4, 487-492. doi:10.1038/NCLIMATE2195 *

*see "Press and Media Releases" for full list of articles where this research was highlighted

20) Randall, D.J., **Rummer, J.L.**, Wilson, J.M. Wang, S., Brauner, C.J. 2014. Review: A unique mode of tissue oxygenation and the success of teleost fish. *Journal of Experimental Biology* 217, 1205-1214. doi:10.1242/jeb.093526
19) **Rummer, J.L.**, Couturier, C.S., Stecyk, J.A.W., Gardiner, N.M., Kinch, J.P., Nilsson, G.E., Munday, P.L. 2014. Life on the edge: Thermal optima for aerobic scope of equatorial reef fishes are close to current day temperatures. *Global Change Biology* 20(4):1055-66. doi:10.1111/gcb.12455 *

*see "Press and Media Releases" for full list of articles where this research was highlighted

18) **Rummer, J.L.**, Wang, S., Steffensen, J.F., Randall, D.J. 2014. Function and control of the fish secondary vascular system, a contrast to mammalian lymphatic systems. *Journal of Experimental Biology* 217(5):751-757. doi:10.1242/jeb.086348
17) **Rummer, J.L.**, McKenzie, D.J., Innocenti, A., Supuran, C.T., Brauner, C.J. 2013. Root effect haemoglobin may have evolved to enhance general oxygen delivery. *Science* 340, 1327-1329. doi:10.1126/science.1233692 *

*see "Press and Media Releases" for full list of articles where this research was highlighted

16) Collins, G., Clark, T.D., **Rummer, J.L.**, Carton, A.G. 2013. Hypoxia tolerance is conserved across genetically distinct sub-populations of an iconic, tropical Australian teleost (*Lates calcarifer*) *Conservation Physiology* **1**. doi:10.1093/conphys/cot029
15) **Rummer, J.L.**, Stecyk, J.A.W., Couturier, C.S., Watson, S-A., Nilsson, G.E., Munday, P.L. 2013. Elevated CO_2 enhances aerobic scope of a coral reef fish. *Conservation Physiology* 1, doi:10.1093/conphys/cot023
14) McLeod, I.M., **Rummer, J.L.**, Clark, T.D., Jones, G.P., Wenger, A.S., McCormick, M.I., Munday, P.L. 2013. Climate change and the performance of larval coral reef fishes: the interaction between temperature and food availability. *Conservation Physiology* **1**. doi:10.1093/conphys/cot024
13) Couturier, C.S., Stecyk, J.A.W., **Rummer, J.L.**, Munday, P.L., Nilsson, G.E. 2013. Species-specific effects of near-future CO_2 on the respiratory performance of two tropical prey fish and their predator. *Comparative Physiology and Biochemistry - A* 166:482–489. doi:10.1016/j.cbpa.2013.07.025
12) Roche, D.G., Binning, S.A., Bosiger, Y., Johansen, J.L., **Rummer, J.L.** 2013. Finding the best estimates for metabolic rates in a coral reef fish. *Journal of Experimental Biology* 216, 2103-2110. doi:10.1242/jeb.082925
11) Dabruzzi, T.F., Fangue, N.A., **Rummer, J.L.**, Bennett, W.A. 2013. Juvenile Ribbontail Stingray, *Taeniura lymma* (Forsskål, 1775) demonstrate a unique suite of physiological adaptations to survive hyperthermic nursery conditions. *Hydrobiologia* 701, 37-49.
10) **Rummer, J.L.**, Brauner, C.J. 2011. Plasma-accessible carbonic anhydrase at the tissue of a teleost fish may greatly enhance oxygen delivery: *in vitro* evidence in rainbow trout, *Oncorhynchus mykiss*. *Journal of Experimental Biology* 214, 2319-2328. doi:10.1242/jeb.054049 *

*Featured in the Journal of Experimental Biology's *Inside JEB:* "Carbonic anhydrase short-circuit could release Root haemeoglobin oxygen" by Kathryn Knight (Volume 214, pp. i-ii)
*Featured in the Journal of Experimental Biology's *Highlights of 2011.*

9) Wang, J., **Rummer, J.L.**, Niu, C.J., Xie, Z., Huang, C. Qian, Y., Liu, Y. 2011. Compensatory growth in juvenile Chinese three-keeled pond turtles, *Chinemys reevesii*. *Journal of the World Aquaculture Society* 42(1): 82-89. doi:10.1111/j.1749-7345.2010.00446.x
8) **Rummer, J.L.**, Roshan-Moniri, M., Balfry, S.K., Brauner, C.J. 2010. Use it or lose it? Sablefish, *Anoplopoma fimbria*, a species representing a fifth teleostean group where the βNHE associated with the red blood cell adrenergic stress response has been secondarily lost. *Journal of Experimental Biology* 213, 1503-1512. doi:10.1242/jeb.038844
7) Clark, T.D., **Rummer, J.L.**, Sepulveda, C.A., Farrell, A.P., Brauner, C.J. 2009. Reduced and reversed temperature dependence of blood oxygenation in an ectothermic scombrid fish: implications for the evolution of regional heterothermy? *Journal of Comparative Physiology B: Biochemical, Systems, and Environmental Physiology* 180(1):73-82. doi:10.1007/s00360-009-0388-7
6) **Rummer, J. L.**, Fangue, N. A. Jordan, H. L. Tiffany, B. N. Blansit, K. J. Galleher, S. Kirkpatrick, A. Kizlauskus, A. Pomory, C. M., Bennett, W. A. 2009. Physiological tolerance to hyperthermia and hypoxia and effects on species richness and distribution of rockpool fishes of Loggerhead Key, Dry Tortugas National Park. *Journal of Experimental Marine Biology and Ecology* 371(2):155-162. doi:10.1016/j.jembe.2009.01.015
5) Niu, C.J., **Rummer, J.L.** Brauner, C. J., Schulte, P.M. 2008. Heat shock protein (Hsp 70) induced by mild heat shock inhibits sharp plasma osmolarity increase upon seawater transfer in rainbow trout (*Oncorhynchus mykiss*). *Comparative Biochemistry and Physiology C* 138:437-444. doi:10.1016/j.cbpc.2008.04.011

4) Lai, J.C.C., Kakuta, I. Mok, H.O.L. **Rummer**, **J. L.,** Randall, D. J. 2006. Effects of moderate and severe hypoxia on erythropoietin levels in rainbow trout kidney and spleen. *Journal of Experimental Biology* 209: 2734-2738. doi:10.1242/jeb.02279
3) Caldwell, S., **Rummer**, **J.L.,** Brauner, C.J. 2006. Blood sampling techniques and storage duration: Effects on the presence and magnitude of the red blood cell β-adrenergic response in rainbow trout, *Oncorhynchus mykiss*. *Comparative Biochemistry and Physiology A* 144(2): 188-195. doi:10.1016/j.cbpa.2006.02.029
2) **Rummer, J. L.**, Bennett, W.A. 2005. Physiological effects of swim bladder overexpansion and catastrophic decompression on red snapper, *Lutjanus campechanus*. *Transactions of the American Fisheries Society* 134(6): 1457-1470. doi:10.1577/T04-235.1 *

*see "Press and Media Releases" for full list of articles where this research was highlighted

1) Fangue, N. A., Flaherty, K. E. **Rummer**, **J. L.** Cole, G. Hansen, K. S. Hinote, R. Noel, B. L. Wallman, H., Bennett, W.A. 2001. Temperature and hypoxia tolerance of selected fishes from a hyperthermal rockpool in the Dry Tortugas, with notes on diversity and behavior. *Caribbean Journal of Science* 37(1-2): 81-87. doi:10.1086/589109

EDITORIAL COMMENTARIES:

9) **Rummer, J.L.** 2010. Communication skills for the biosciences: A graduate guide. *The Quarterly Review of Biology* **85**, 488-489. doi:10.1086/656837
8) **Rummer, J.L.** 2010. Is it cheaper to "grow up" fast? *Journal of Experimental Biology* 213: iv. doi:10.1242/jeb.036749
7) **Rummer, J.L.** 2010. How wooly mammoth blood cheated the cold *Journal of Experimental Biology* 213: v. doi:10.1242/jeb.036624
6) **Rummer, J.L.** 2010. Ionregulation drives gill development *Journal of Experimental Biology* 213:iv. doi:10.1242/jeb.036509
5) **Rummer, J.L.** 2010. Brrrown adipose tissue: special fat for cold critters *Journal of Experimental Biology* 213: vi. doi:10.1242/jeb.036384
4) **Rummer, J.L.** 2009. Komodo dragon's "pearly whites" pack a 1-2-3 deadly punch *Journal of Experimental Biology* 212:iv. doi:10.1242/jeb.023788
3) **Rummer, J.L.** 2009. The real taste of victory. *Journal of Experimental Biology* 212:iv. doi:10.1242/jeb.023796
2) **Rummer, J.L.** 2009. Global warming could cancel 'journey of a thousand miles.' *Journal of Experimental Biology* 212:v. doi:10.1242/jeb.023804
1) **Rummer, J.L.** 2009. A little stress for a fetus goes a long way. *Journal of Experimental Biology* 212(4):v. doi:10.1242/jeb.023812

MANUSCRIPTS CURRENTLY IN REVIEW:

5) Hess, S., Wenger, A.S., Ainsworth, T., **Rummer, J.L.** Rising suspended sediment levels on the Great Barrier Reef pose a risk to fish health. *Scientific Reports* (in review).
4) Ferrari, M.C.O., Munday, P.L., **Rummer, J.L.**, McCormick, M.I., Corkill, K., Watson, S-A., Allan, B.J.M, Meekan, M.G., Chivers, D.P. Interactive effects of ocean acidification and rising sea temperatures alter prey mortality and predator selectivity in reef fish communities. *Global Change Biology* (in review).

3) **Rummer, J.L.**, Binning, S.A., Roche, D.G., Johansen, J.L. Method matters: The importance of locomotory mode and respirometry technique for estimating metabolic rate in fish. *Methods in Ecology and Evolution* (in review).
2) Baker, D.W., Sardella, B., **Rummer, J.L.**, Sackville, M., Brauner, C.J. Hagfish: Champions of CO_2 tolerance provide insight into the evolution of the vertebrate gill. *Proceedings of the National Academy of Sciences* (in review).
1) **Rummer, J.L.** and Brauner, C.J. The influence of pH on haemoglobin-oxygen binding: A comprehensive investigation of the Bohr-Root system in rainbow trout, *Oncorhynchus mykiss* and the potential benefit to oxygen delivery. *Proceedings of the Royal Society of London - Biology* (in review).

CONFERENCE PRESENTATIONS: (11 COUNTRIES, 28 INVITED PRESENTATIONS)

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71) Athletes of the Great Barrier Reef, October 2014, TEDx talks at JCU-Cairns, Torrid Talks – Why Aristotle was wrong. James Cook University, Cairns, AUSTRALIA. **Invited Presentation**
70) Gills gone wild: Physiological responses to climate change in fish, July 2014, The Future of Coral Reefs, ARC Centre of Excellence for Coral Reef Studies annual symposium, Canberra, AUSTRALIA. **Invited Presentation**
69) Life on the edge: Optimal temperatures for aerobic performance of equatorial reef fishes are close to current day temperatures, December 2013, Groupement de Recherche International (GDRI) biodiversite des Recifs Coralliens, International Research Network Biodiversity of Coral Reefs, Paris, FRANCE. **Invited Presentation**
68) Physiological performance of coral reef fishes in a changing climate, October 2013, Coral Reefs in the 21st Century, Coral Reef Adaptation to Climate Change, Townsville, QLD AUSTRALIA. **Invited Presentation**
67) Climate change and the impacts on physiological performance of coral reef fishes, August 2013, Texas A&M University, College Station and Galveston campuses, Texas, USA. **Invited Presentation**
66) Looking for the unexpected athletes of the marine world: using physiological performance to understand how marine fishes might fare in a changing climate. August 2013, Georgia Institute of Technology, Atlanta, Georgia, USA. **Invited Presentation**
65) Fish performance in a high CO_2 world: Predator vs. prey. August 2013, Georgia Aquarium, Atlanta, Georgia, USA. **Invited Presentation**
64) Finding the best metabolic rate estimates in a coral reef fish. August, 2013, Australian Society for Coral Reef Science, Sydney, AUSTRALIA, with D.G. Roche, S.A. Binning, Y. Bosiger, J.L. Johansen.
63) Looking for the unexpected athletes of the marine world: using physiological performance to understand how marine fishes might fare in a changing climate. July 2013, Japan-Australia marine science workshop: Understanding global change impacts and opportunities in tropical and subtropical marine ecosystems, Tokyo, JAPAN. **Invited Presentation**
62) Know your enemy: links between metabolic traits and aggression in a tropical damselfish. July, 2013, Society for Experimental Biology Symposium on Mechanisms and functions of intraspecific variation: from genes to behavior with S.S. Killen, M. Mitchell, M. Welch, D. Chivers, M. Ferrari, M. Meekan, M. I. McCormick.
61) Cognitive impairment in coral reef fishes living in shallow water volcanic CO_2 seeps. July, 2013, Society for Experimental Biology Symposium on Aquatic life in a warmer and higher CO_2 world Valencia, SPAIN, with D.L. Dixson, A. Cheel, K. Fabricius, P.L. Munday.

60) Finding the best metabolic rate estimates in a coral reef fish. July, 2013, Society for Experimental Biology Symposium on Conservation Physiology, Valencia, SPAIN, with D.G. Roche, S.A. Binning, Y. Bosiger, J.L. Johansen.
59) Hypoxia tolerance and resting metabolism are conserved across genetically distinct sub-populations of an iconic, tropical Australian teleost (*Lates calcarifer*). July, 2013, Society for Experimental Biology Symposium on Remodelling of physiological systems in response to environmental change, Valencia, SPAIN, with G.M. Collins, T.D. Clark, and A.G. Carton.
58) Root effect hemoglobins greatly enhance oxygen delivery to the red muscle and gut in teleosts. July, 2013, Society for Experimental Biology Symposium on Challenges to respiratory gas transport, Valencia, SPAIN, with C.J. Brauner, McKenzie, D.J., Cooper, C., Regan, M., Wilson, R. **Invited Presentation**
57) Will ocean acidification affect the physiology of predatory reef fish? July, 2013, Society for Experimental Biology Symposium on Conservation Physiology, Valencia, SPAIN, with S. Lefevre, G. E. Nilsson, S-A. Watson, J.M. Wilson, P. L. Munday, T.D. Clark. **Invited Presentation**
56) Ocean acidification does not compromise digestion-related metabolism in a predatory coral reef fish. July, 2013, Society for Experimental Biology Symposium on Conservation Physiology, Valencia, SPAIN, with T.D. Clark. **Invited Presentation.**
55) Will ocean acidification affect the physiology of predatory reef fish? June, 2013, Ecofisiologia Centro de Investigação Interdisciplinar Marinha e Ambientral (CIIMAR), Porto, PORTUGAL. **Invited Presentation**
54) Climate change and global warming's evil (?) cousin, ocean acidification: Effects on metabolic performance in coral reef fishes. May, 2013, The Australian National University **Invited Presentation**
53) Climate change and global warming's evil (?) cousin, ocean acidification: Effects on metabolic performance in coral reef fishes. March, 2013, University of Tasmania and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) **Invited Presentation**
52) Global warming and climate change's evil (?) cousin, ocean acidification: Effects on aerobic performance in coral reef fishes. August, 2012, ARC Centre of Excellence for Coral Reef Studies seminar series, Queensland, AUSTRALIA. with J.A.W. Stecyk, C.S. Couturier, S-A. Watson, N.M. Gardiner, J.P. Kinch, P.L. Munday, and G.E. Nilsson. **Invited Presentation**
51) Elevated CO_2 enhances aerobic performance of a coral reef fish. July, 2012, International Congress on the Biology of Fish, Madison, Wisconsin, USA. with J.A.W. Stecyk, C.S. Couturier, S. Watson, P.L. Munday, and G.E. Nilsson. **Invited Presentation**
50) Life at the equator: coral reef fishes may already be living at the edge of their thermal optima. July, 2012, International Congress on the Biology of Fish, Madison, Wisconsin, USA. with C.S. Couturier, N. Gardiner, J.A.W. Stecyk, P.L. Munday, and G.E. Nilsson. **Invited Presentation**
49) Local adaptation to climate change: fish physiology across latitudes. July, 2012, 12th International Coral Reef Symposium, Cairns, Queensland, AUSTRALIA. with C.S. Couturier, N. Gardiner, J.A.W. Stecyk, P.L. Munday, and G.E. Nilsson
48) The synergistic effects of high temperature and co_2 on whole animal and mitochondrial metabolism of a tropical coral reef fish. July, 2012, Society for Experimental Biology, Salzburg, AUSTRIA. with Andrea J. Morash, Fathima I. Iftikar, Gabrielle M. Miller, Anthony J.R. Hickey, and Philip L. Munday
47) Elevated CO_2 enhances aerobic scope of a coral reef fish. July, 2012, Society for Experimental Biology, Salzburg, AUSTRIA. with J.A.W. Stecyk, C.S. Couturier, S. Watson, P.L. Munday, and G.E. Nilsson
46) Life at the equator: coral reef fishes may already be living at the edge of their thermal optima. July, 2012, Society for Experimental Biology, Salzburg, AUSTRIA. with C.S. Couturier, N. Gardiner, J.A.W. Stecyk, P.L. Munday, and G.E. Nilsson

45) Maximum intrinsic heart rate and oxygen uptake of tropical reef fishes at elevated temperature: compensatory changes after warm acclimation. July, 2012, Society for Experimental Biology, Salzburg, AUSTRIA. with J.A.W. Stecyk, C.S. Couturier, P.L. Munday, and G.E. Nilsson
44) Acclimation and adaptation to environmental change: Understanding interacting physiological processes in fish. May, 2011, Jimei University, Xiamen, CHINA. **Invited Presentation**
43) Mechanisms for enhancing oxygen delivery in fish. University of British Columbia, Comparative Physiology Monday Night Seminar Series. October, 2010, Vancouver, CANADA. **Invited Presentation**
42) Red blood cell soluble adenylyl cyclase (sAC) and Na^+/H^+ exchange (NHE): A potential pathway through which fish may exploit the Root effect for general oxygen delivery in the absence of catecholamines. with M. Tresguerres, G. G. Goss, and C.J. Brauner. 9th International Congress on the Biology of Fish, Ion and Acid-Base Regulation Symposium. July, 2010, Barcelona, SPAIN. **Invited Presentation**
41) The physiological mechanism underlying enhanced oxygen delivery to red muscle in rainbow trout. with D.J. McKenzie, A. Innocenti, C.T. Supuran, & C.J. Brauner. 49th Annual Canadian Society of Zoologists conference, May 2010, Vancouver, B.C. CANADA.
40) New Insight into the Evolution of the Root Effect for Oxygen Delivery in Teleost Fish. with D.J. McKenzie, C. Supuran, and C.J. Brauner. 48th Annual Canadian Society of Zoologists conference, May 2009, Toronto, Ontario, CANADA.
39) Sablefish, black cod, butterfish: Delicious dinner or deep-sea fish whose oxygen delivery system is uninhibited by stress? with M. Roshan-Moniri, S.K. Balfry, and C.J. Brauner. UBC Zoology Graduate Student Symposium, April 2009, Vancouver, British Columbia, CANADA.
38) The Root effect and tissue oxygenation in fish. University of British Columbia, Biology 454 Comparative Animal Physiology Course, November 2008, Vancouver, British Columbia, CANADA. **Guest Lecture**
37) Physiological mechanisms of CO_2 tolerance in the primitive fish, the white sturgeon (*Acipenser transmontanus*) with D.W. Baker, K. Huynh, J.M. Wilson, J.D. Morgan, V. Matey, and C.J. Brauner. 8th International Congress on the Biology of Fish, Ion and Acid-Base Regulation Symposium. July, 2008, Portland, Oregon, USA. **Invited Presentation**
36) Getting to the Root of tissue oxygenation in teleost fish: A more ubiquitous role for the Root effect in oxygen delivery. with C.J. Brauner. 8th International Congress on the Biology of Fish, Ion and Acid-Base Regulation Symposium. July, 2008, Portland, Oregon, USA. **Invited Presentation**
35) Beyond buoyancy and vision: the potential for the Root effect to facilitate oxygen delivery to tissues other than the swim bladder and eye. Society for Experimental Biology Young Scientist of the Year Award Session, July, 2008, Marseille, FRANCE, **Awarded Young Scientist of the Year, 2nd runner up**
34) Beyond buoyancy and vision: the potential for the Root effect to facilitate oxygen delivery to tissues other than the swim bladder and eye. with C.J. Brauner, Society for Experimental Biology Symposium: Physiological Strategies to Optimize Oxygen Delivery, July, 2008, Marseille, FRANCE, **Invited Presentation**
33) Fine tuning of buoyancy control mechanisms in the rockfishes, genus *Sebastes*.in relation to depth. with M. Berenbrink and C.J. Brauner, University of Liverpool, School of Biological Sciences, June 2008, Liverpool, England, UK**, Invited Presentation**
32) Fine tuning of buoyancy control mechanisms in the rockfishes, genus *Sebastes*.in relation to depth. with M. Berenbrink and C.J. Brauner, 47th Annual Canadian Society of Zoologists conference, May 2008, Halifax, Nova Scotia, CANADA.

31) Fine tuning of buoyancy control in the rockfishes, genus *Sebastes*. with M. Berenbrink and C.J. Brauner, 15th Annual Western Groundfish Conference, February 2008, Santa Cruz, CA, USA.
30) The Root effect, buoyancy, and depth distribution: A snapshot of adaptive radiation. University of British Columbia Department of Zoology Comparative Physiology Seminar Series, September 2007, Vancouver, British Columbia, CANADA, **Invited Presentation**
29) Exploding fish: Swim bladders and mechanisms for buoyancy control. University of Liverpool, School of Biological Sciences, June 2007, Liverpool, England, UK**, Invited Presentation**
28) Characterization of the oxygen transport system in sablefish, *Anoplopoma fimbria*. with M. Roshan-Moniri, S.K. Balfry, and C.J. Brauner. Canadian Society of Zoologists annual meeting, May 2007, McGill Univeristy, Montreal, Québec.
27) Beyond buoyancy and vision: Potential for the Root effect to facilitate oxygen delivery in muscle tissue. with C.J. Brauner. Canadian Society of Zoologists annual meeting, May 2007, McGill Univeristy, Montreal, Québec.
26) The role of the Root effect in enhancing oxygen delivery other than the teleost swim bladder and eye. with C.J. Brauner. University of British Columbia 16th Annual Zoology Graduate Student Symposium. 2007, Vancouver, British Columbia, CANADA
25) Ionoregulation vs. Osmoregulation: Lessons from the Pacific hagfish (*Eptatretus stoutii*). with C.J. Brauner, D. Baker, B. Sardella, Y. Wang, and J.M. Wilson. VIIth International Congress on the Biology of Fishes. 2006, St. John's, Newfoundland, CANADA
24) Effects of dietary lipid substitution on swimming performance during the early developmental stages of Chinook salmon). with M. Regan, L. Kuchel, S. Huang, S.K. Balfry, D. A. Higgs, R.H. Devlin, P.M. Schulte, and C.J. Brauner. Society for Experimental Biology. 2006, Canterbury, Kent, ENGLAND.

*see "Press and Media Releases" for full list of articles where this research was highlighted

23) The onset of the Root effect and the red blood cell β-adrenergic response in the copper rockfish, *Sebastes caurinus.* with M. Regan and C.J. Brauner. Society for Experimental Biology. 2006, Canterbury, Kent, ENGLAND.
22) Acid-base regulation during exposure to elevated environmental CO_2 in an osmoconformer, the Pacific Hagfish (*Eptatretus stoutii*). with D. Baker, B. Sardella, and C.J. Brauner. Society for Experimental Biology. 2006, Canterbury, Kent, ENGLAND.
21) A swimmer's diet: Substituting dietary lipids and the resulting effects on swimming performance in Chinook salmon (*Oncorhynchus tshawytscha*). with A. M. Machala, A. Grant, S.K. Balfry, D. A. Higgs, R.H. Devlin, P.M. Schulte, and C.J. Brauner. Society for Experimental Biology. 2006, Canterbury, Kent, ENGLAND.

*see "Press and Media Releases" for full list of articles where this research was highlighted

20) Release mortality in Gulf of Mexico red snapper: Physiological consequences of catastrophic decompression. Invited presentation, Red Snapper Ecology and Fisheries in the U.S. Gulf of Mexico Symposium. Southern Division American Fisheries Society. 2006, San Antonio, Texas USA. **Awarded best student presentation, 1st runner up**
19) The Root Effect: Potential for delivering oxygen to muscle tissue in fish. University of British Columbia Department of Zoology Comparative Physiology Seminar Series, Invited Presentation. 2005, Vancouver, British Columbia, CANADA
18) To sink or swim: Effects of alternate dietary lipids on swimming performance of Chinook salmon (*Oncorhynchus tshawytscha*). with A. M. Machala, A. Grant, S.K. Balfry, D. A. Higgs, R. H. Devlin, P. M. Schulte, and C. J. Brauner. Canadian Society of Zoologists annual conference. 2005, Kingston, Ontario CANADA

17) Physiological effects of catastrophic decompression on the Gulf of Mexico red snapper, *Lutjanus campechanus*. Canadian Society of Zoologists annual conference. 2004, Wolfville, Nova Scotia CANADA

16) Rapid swimbladder expansion due to catastrophic decompression: Physiological effects in red snapper, *Lutjanus campechanus*. University of British Columbia 13th Annual Zoology Graduate Student Symposium. 2004, Vancouver, British Columbia, CANADA, **Awarded best student presentation, 1st runner up**

15) Exploding fish: Physiological effects of fisheries-induced catastrophic decompression on red snapper, *Lutjanus campechanus*. with W. A. Bennett. University of British Columbia Department of Zoology Comparative Physiology Seminar Series, 2003. Vancouver, BC, CANADA, **Invited Presentation**

14) Deeper is more devastating: Physiological effects of catastrophic decompression on red snapper, *Lutjanus campechanus*. with W. A. Bennett. American Fisheries Society Annual Conference. 2003, Quebec City, QC CANADA, **Awarded best student presentation**

13) Comparative batoid physiology. with N. A. Fangue and W. A. Bennett. Joint Meeting of Ichthyologists and Herpetologists. 2003, Manaus, Amazonas BRAZIL.

12) Life at the margins: Effects of limiting factors on richness, distribution, and physiology of intertidal fishes. with N. A. Fangue and W. A. Bennett. Joint Meeting of Ichthyologists and Herpetologists. 2003, Manaus, Amazonas BRAZIL.

11) Life at the Margins: Effects of Limiting Factors on Richness, Distribution and Physiology of Intertidal Fishes in Hoga, Indonesia. with W. A. Bennett. International Conference on the Conservation and Natural Resource Management of Tropical Ecosystems. 2003, Kinnersley, ENGLAND.

10) Deeper is more devastating: Physiological effects of catastrophic decompression on red snapper, *Lutjanus campechanus*. with W. A. Bennett. Florida Chapter of the American Fisheries Society. 2003, Brooksville, FL USA. **Awarded best student presentation**

9) Importance of marginal reef habitat use by reef fishes in the Wakatobi Marine National Park, Indonesia. with W.A. Bennett and N. A. Fangue. Operation Wallacea Invited Presentation. 2002, Pulau Hoga, INDONESIA

8) Thermal Ecology of Batoids. with W. A. Bennett, and N. A. Fangue. Operation Wallacea Invited Presentation. 2002, Pulau Hoga, INDONESIA.

7) Utilization of Marginal Habitats by Reef Fishes in Dry Tortugas National Park in June 2001 with K. Fitchett, N. A. Fangue, H. Wallman, B. N. Tiffany, C. M. Pomory, and W. A. Bennett. University of Southern Mississippi Graduate Student Biological Symposium. 2002, Hattiesburg, MS USA.

6) Marginal Habitat Utilization of Rockpool Fishes in Dry Tortugas National Park with K. Fitchett, N. A. Fangue, H. Wallman, B. N. Tiffany, C. Pomory, and W. A. Bennett. Florida Chapter of the American Fisheries Society. 2002, Brooksville, FL USA.

5) Temperature and Hypoxia Tolerance of Selected Fishes from a Hyperthermal Tidepool in the Dry Tortugas. with N. A. Fangue, H. Wallman, and W. A. Bennett. Southern Division of the American Fisheries Society. 2001, Jacksonville, FL USA.

4) Role of Temperature on Behavior and Movement of Atlantic Stingray, *Dasyatis sabina*, from St. Joseph's Bay, Florida. with N. A. Fangue and W. A. Bennett. Southern Division of the American Fisheries Society. 2001, Jacksonville, FL USA. **Awarded best student poster, honourable mention**

3) Thermal and Oxic Tolerances of Selected Fishes from a Hyperthermal Tidepool in the Dry Tortugas. with N. A. Fangue, H. Wallman, and W. A. Bennett. Dauphin Island Sea Lab Graduate Student Symposium. 2001, Dauphin Island, AL USA.

2) Behavior, Movement, and Abundance of Atlantic Stingray, *Dasyatis sabina*, from St. Joseph's Bay, Florida. with W. A. Bennett and N. A. Fangue. Dauphin Island Graduate Student Symposium. 2001, Dauphin Island, AL USA.

1) Thermal tolerance and resistance responses of sheepshead minnow acclimated at various ambient salinities. with N. A. Fangue and W. A. Bennett. Florida Chapter of the American Fisheries Society. 1999, Brooksville, FL USA. **Awarded best student poster, honourable mention**

PROFESSIONAL EMPLOYMENT HISTORY:

Senior Research Fellow (level: Assistant Professor) (August 2014 – present)
ARC Centre of Excellence for Coral Reef Studies,
James Cook University, Townsville, QLD, AUSTRALIA

Supervisor: Prof. Terrance Hughes, Director
Responsibilities: Design and execution of research aimed toward assessing the physiological effects of climate change-related increases in CO_2 and temperature on multiple populations (geographically separated) and generations of coral reef fish and supervising graduate and honours students' research and thesis writing.
Teaching: Special Topics in Biochemistry and Molecular Biology (BC3202 & BC5202)

Academic Editor (August 2014 – present)
PLOS One

Supervisor: Lindsay Howell, Editorial Manager
Responsibilities: Handling, sending to review, corresponding with referees and authors, and making publication decisions for manuscripts submitted to *PLOS One* and taking part of scientific publishing in an Open Access environment.

ARC Super Science Research Fellow (August 2011 – August 2014)
ARC Centre of Excellence for Coral Reef Studies,
James Cook University, Townsville, QLD, AUSTRALIA

Supervisor: Prof. Terrance Hughes, Director
Responsibilities: Design and execution of research aimed toward assessing the physiological effects of climate change-related increases in CO_2 and temperature on multiple populations (geographically separated) and generations of coral reef fish and supervising graduate and honours students' research and thesis writing.
Teaching: Aquatic Physiology (AQ3007), Coral Reef Ecology – Advanced (MB3199)

Post-doctoral Research Fellow (November 2010 – May 2011, post-doctoral position)
Department of Biology and Chemistry, City University of Hong Kong, Kowloon, HONG KONG

Supervisor: Prof. David J. Randall, Project Principal Investigator
Responsibilities: Design and execution of research aimed toward further supporting the hypothesis that teleost fish maintain a capacity for enhanced oxygen delivery over air-breathing vertebrates. Technologies such as real-time imaging of oxygen transport throughout the teleost fish circulatory system during rest and stress as well as immunohistochemistry were used.

Lectured for upper level university student course in Environmental Toxicology, predominantly Chinese and ESL students

Editorial Commentary Journalist (August 2008 – October 2010)
Journal of Experimental Biology

Supervisor: Kathryn Phillips, *Journal of Experimental Biology* News and Views Editor
Responsibilities: Writing editorial commentaries for the "Outside JEB" series in the *Journal of Experimental Biology*

Private tutor and Note taker (August 2006 – September 2010)
Responsibilities: Tutoring special-needs students in biological, chemical and social sciences as well as algebra, trigonometry, and calculus.

Aquatic Facilities Curator (August 2007 – June 2010)
University of British Columbia, Department of Zoology, Vancouver, B.C. CANADA

Supervisors: Profs. William K. Milsom & Jeffrey G. Richards, Animal care and departmental facility coordinators
Responsibilities: Oversee aquatic facility allocation and use, animal care procedures and protocols within the Department of Zoology, and annual university-wide inspections.

Research Assistant (August 2004 – June 2006)
AquaNet, Canada Network Centre of Excellence in Aquaculture, Vancouver, B.C. CANADA

Supervisor: Prof. Colin Brauner, Project Principal Investigator
Responsibilities: Design and execution of research aimed toward testing physiological performance in Chinook salmon and the effects of diet, namely when a portion of the total lipid components in manufactured fish feed is substituted with canola oil.
Highlights: Study featured on German, Belgium, & Canada Public Radio, ten printed and online media publications, two manuscripts submitted for publication

Teaching Assistant (August 2003-May 2006)
University of British Columbia, Department of Zoology, Vancouver, B.C. CANADA

Supervisor: Prof. William K. Milsom, Professor and Department Chair
Undergraduate courses:
- Animal Physiology*
- Environmental Physiology*
- UBC Science Co-op Program

*co-instructed, guest lectures
Highlights: Ranked within top 10% of teaching assistants and invited to guest lecture on scientific writing.

Research & Volunteer Coordinator (August 2002 – May 2003)
Operation Wallacea, Lincolnshire, ENGLAND

Supervisor: Dr. Timothy Coles, Project Director
Responsibilities: Educating U.S. students about ongoing research in Southeast Sulawesi and recruiting volunteers and interns for upcoming and ongoing studies.

Research Team Leader (August 2001 – May 2003)
Indonesia Research Team 2002, University of West Florida, Pensacola, Florida USA

Supervisor: Prof. Wayne A. Bennett, Project Principal Investigator
Responsibilities: Designing and coordinating four research projects to be executed on the island of Hoga in Southeast Indonesia during July 2002; Organizing and preparing 11 undergraduate interns to assist with research projects.
Highlights: Two manuscripts are being reviewed for publication in peer-review journals. Projects highlighted in UWF E-news

Laboratory Specialist (December 2000 – November 2001)
Porous Groyne Monitoring Project, Benedict Engineering Corporation, Tallahassee, Florida USA

Supervisor: Prof. Wayne A. Bennett, Principle Investigator
Responsibilities: Scientific monitoring of beach groyne installation site to avoid or alleviate entanglement of dolphins, manatees, and sea turtles, collection of biotic and abiotic site data, and report writing.
Highlights: Published report, August 2001.

Teaching Assistant (August 1998 – June 2003)
University of West Florida, Department of Biology, Pensacola, Florida USA

Supervisor: Prof. George Stewart, Professor and Department Chair
Undergraduate courses:

- General Biology*
- General Zoology
- Marine Invertebrate Zoology
- Comparative Animal Physiology
- Marine Biology & Oceanography*

Graduate courses:

- Marine Ecophysiology
- Wetlands Ecology

**Instructor of record*

Highlights: Honoured with "Teaching Assistant of the Year" award in April 2001

Research Assistant (August 1998 – August 2003)
University of West Florida, Department of Biology, Pensacola, Florida USA

Supervisor: Prof. Wayne A. Bennett, Associate Professor of Vertebrate Physiology
Responsibilities: Animal and data collection as well as care and maintenance of live laboratory animals used in research.
Highlights: Two publications.

Research Assistant (August 1999 – May 2000)
University of West Florida, Department of Biology, Pensacola, Florida USA

Supervisor: Prof. Philip Darby, Associate Professor of Ecology
Responsibilities: Design, set-up, and maintenance of laboratory facilities and equipment, coordination of University resources, animal care, data analyses and other lab management duties.

Tutor and Note taker (August 1996 – May 1997)
Lincoln Land Community College, Springfield, Illinois USA

Supervisor: Student Services Program
Responsibilities: Tutoring and note taking for special-needs students.

GRANTSMANSHIP:

SUMMARY:

Cash awards granted: $212,929
Equipment/services donated: $43,000
Total: $255,929 (USD)

$5,000 (AUD) James Cook University ARC Centre of Excellence for Coral Reef Studies Research Funding, August – December 2014.

$10,000 (AUD) James Cook University ARC Centre of Excellence for Coral Reef Studies Research Funding, January – June 2014.

$4,000 Griffith University (Gold Coast) Climate Change Response Group for collaborative work with Prof. Gillian Renshaw – April 2014

€4500 Institut des Récifs Coralliens du Pacifique / Institute for Pacific Coral Reefs grant to conduct research at Laboratoire d'Excellence (CORAIL) "Les récifs coralliens face au changement global" Centre de Recherche Insulaire et Observatoire de l'Environnement (CRIOBE) in Moorea, POLYNÉSIE FRANÇAISE – October – November 2014.

$15,000 (AUD) James Cook University ARC Centre of Excellence for Coral Reef Studies Research Funding, January – June 2014.

$20,000 (AUD) James Cook University ARC Centre of Excellence for Coral Reef Studies Research Funding, January – December 2013.

$3,000 (USD) Australian Academy of Sciences, to attend and present at The Japan-Australia marine science workshop: Understanding global change impacts and opportunities in tropical and subtropical marine ecosystems, Tokyo, JAPAN, July 2013.

£180 ($286) Society for Experimental Biology, Company of Biologists Travel award to attend the annual conference in Valencia, SPAIN, July 2013.

£350 ($500) The Society for Experimental Biology, project funded entitled "The physiological consequences of elevated CO_2 on a keystone species of the Great Barrier Reef", October 2012.

£1,000 ($1500) The Journal of Experimental Biology, project funded entitled "The physiological consequences of elevated CO_2 on a keystone species of the Great Barrier Reef", September 2012.

£250 ($400) Society for Experimental Biology, Company of Biologists Travel award to attend the annual conference in Salzburg, AUSTRIA, June-July 2012.

$20,000 (USD) National Geographic Society, project funded entitled "Responses of fishes and their prey to ocean acidification: using cool shallow CO_2 seeps emerging from coral reefs in Papua New Guinea as a window into the future" with K. Fabricius, A. Mungkaje, P. Munday, S. Uthicke, A. Cheal, and S. Noonan, March 2012.

£2,000 ($3000) The Journal of Experimental Biology, project funded entitled "Global climate change and its effects on the metabolism of two Great Barrier Reef fish species" with A.J. Morash and F.I. Iftikar, January 2012.

$20,000 (AUD) James Cook University ARC Centre of Excellence for Coral Reef Studies Research Funding, January – December 2012

$6,000 (AUD) Funding for 4 weeks of research at the National Fisheries College Institute of Sustainable Marine Resources research station on Nago Island, New Ireland Province, Papua New Guinea with P. Munday, N. Gardiner, G. Nilsson, C. Courturier, and J. Stecyk, project entitled "Local adaptation to climate change: fish physiology across latitudes"

$3,000 (AUD) National Fisheries College of Papua New Guinea, Research Funding

$10,000 (AUD) James Cook University ARC Centre of Excellence for Coral Reef Studies Research Funding, August – December, 2011

$3,600 University of British Columbia Faculty of Graduate Studies Tuition Scholarship, September 2010

$500 University of British Columbia, Department of Zoology Graduate Student Travel Award to attend the International Congress on the Biology of Fish, Barcelona, July 2010

$7,200 University of British Columbia Faculty of Graduate Studies Tuition Scholarship, September 2009

$7,200 University of British Columbia Faculty of Graduate Studies Tuition Scholarship, September 2008

£500 ($1000) Society for Experimental Biology, Company of Biologists Travel award to pursue a collaborative research project at the University of Liverpool, UK, May-July 2008.

$500 EPCOR Water Ltd. Scholarship to attend the 47th annual Canadian Society of Zoologists in Halifax, Nova Scotia, May 2008

$675 Travel and registration scholarship to attend the 15th annual Western Groundfish Conference in Santa Cruz, CA, February 2008

$7,200 University of British Columbia Faculty of Graduate Studies Tuition Scholarship, September 2007

$200 Canadian Society of Zoology travel grant to attend the 46th annual joint meeting of CSZ/MSC meeting in Montreal, Quebec, May 2007

$16,000 University of British Columbia University Graduate Fellowship, September 2006

$7,200 University of British Columbia Faculty of Graduate Studies Tuition Scholarship, September 2006

$2,000 AquaNet Canadian Centre of Excellence travel grant to attend the Society for Experimental Biology annual meeting in Canterbury, Kent, UK, April 2006

$400 University of British Columbia Graduate Studies travel grant to attend the Southern Division of the American Fisheries Society meeting in San Antonio, USA, February 2006

$8,000 University of British Columbia University Graduate Fellowship, September 2005

$7,200 University of British Columbia Faculty of Graduate Studies Tuition Scholarship, September 2005

$100 Canadian Society of Zoology travel grant to attend annual joint meeting of CSZ/MSC meeting in Kingston, Ontario, May 2005

$7,200 University of British Columbia Faculty of Graduate Studies Tuition Scholarship, September 2004

$250 Canadian Society of Zoology travel grant to attend annual joint meeting of CSZ/MSC meeting in Wolfville, Nova Scotia Canada, May 2004

$7,200 University of British Columbia Faculty of Graduate Studies Tuition Scholarship, September 2003

$300 University of West Florida-MERS travel grant to attend joint meeting of ASIH/AES in Manaus, Amazonas Brazil, July 2003

$300 Florida Chapter of the American Fisheries Society student travel grant to attend American Fisheries Society Student Colloquium, February 2003.

$150 Florida Chapter of the American Fisheries Society student travel grant to attend Florida Chapter annual meeting in Brooksville, FL, February 2003.

$200 University of West Florida-MERS research activity grant for projects entitled "Importance of marginal reef habitat use by reef fishes in the Wakatobi Marine National Park, Indonesia", April 2002

$150 Florida Chapter of the American Fisheries Society student travel grant to attend Florida Chapter annual meeting in Brooksville, FL, February 2002.

$2,400 Operation Wallacea Research Fellowship for projects entitled "Importance of marginal reef habitat use by reef fishes in the Wakatobi Marine National Park, Indonesia", September 2001

$300 University of West Florida-MERS travel grant to attend joint meeting of ASIH/AES at Penn State University, July 2001

$250 University of West Florida College of Arts & Sciences scholarly and creative activity grant awarded to continue thesis research entitled "Effects of catastrophic decompression and acute swimbladder deflation on red snapper, *Lutjanus campechanus*", March 2001

$300 University of West Florida Department of Biology travel grant to attend Southern Division AFS meeting in Jacksonville, FL, February 2001

$150 University of West Florida Department of Biology travel grant to attend Dauphin Island Sea Lab Graduate Student Symposium, January 2001

$40,000 SERF engineers grant for equipment and resources towards thesis research, "Effects of catastrophic decompression and acute swimbladder deflation on red snapper, *Lutjanus campechanus*", November 2000

$1,000 over three years, *New Florida Girl*, Destin, FL, annual donation of boat time towards thesis research "Effects of catastrophic decompression and acute swimbladder deflation on red snapper, *Lutjanus campechanus*", April 2000

$250 University of West Florida College of Science and Technology scholarly and creative activity grant awarded for research entitled "Maximum and minimum thermal tolerance of striped burrfish, *Chilomycterus schoepfi*", March 2000

$500 University of West Florida College of Science and Technology scholarly and creative activity grant awarded for research entitled "Effects of catastrophic decompression and acute swimbladder deflation on red snapper, *Lutjanus campechanus*", September 1999

$200 University of West Florida Department of Biology travel grant to attend the Florida Chapter of the AFS annual meeting in Brooksville, FL, February 1999

AWARDS AND HONOURS RECEIVED:

- Visiting Scientist, The Australian National University, Canberra, AUSTRALIA
- Visiting Scientist, Commonwealth Scientific and Industrial Research Organization (CSIRO), Hobart, Tasmania, AUSTRALIA
- Visiting professor, Fisheries College Jimei University, Xiamen, CHINA

- American Fisheries Society Travel Grant, July 2010
- University of British Columbia Department of Zoology Travel Grant, May 2010
- Society for Experimental Biology Young Scientist of the Year, 2nd runner up, July 2008
- EPCOR Water Ltd. Scholarship, May 2008
- Company of Biologists Research Travel Scholarship, March 2008
- University of British Columbia University Graduate Fellowship, September 2006
- American Fisheries Society – Southern Div., best presentation, runner up, February 2006
- University of British Columbia University Graduate Fellowship, September 2005
- University of British Columbia Zoology Graduate Symposium, second place, April 2004
- American Fisheries Society/Sea Grant, best student presentation, August 2003
- American Fisheries Society – Florida Chapter, best student presentation, February 2003
- Roger Rottman Memorial scholarship 1st runner up, February 2002
- University of West Florida college-wide teaching assistant of the year, April 2001
- American Fisheries Society – Southern Division, best student poster (HM), January 2001
- Who's Who among American College Students, January 2001
- University of West Florida college-wide graduate fellowship, August 2000
- John C. Pace academic scholarship, January 2000
- University of West Florida academic scholarship, January 1999
- Graduation with honours from Lincoln Land Community College, May 1997
- Honourable mention for essays in the *Harvester* literary magazine, 1996
- Dean's list and President's list, 1995-2000

VOLUNTEER COMMITMENTS & PROFESSIONAL SERVICE:

Community Service:

- British Columbia Girl Guides, Science Program
- Vancouver Friends for Life Society
- A Loving Spoonful
- Vancouver Aquarium's Marine Mammal Rescue & Rehabilitation Program
- U.S. National Parks Tour
- Florida Fish and Wildlife Conservation Commission Kid's Fishing Clinic
- Science Fair Judge 1999-2002
- UWF Math and Science Day
- Stranding Center of the Emerald Coast Wildlife Refuge, Inc.
- Bay Days, International Coastal Clean-up

Advising Roles: Mentored 12 undergraduate research projects since August 1999, recent completions Dennis Heinrich (Honours, First Class), Alyssa Bowden (M.Sc., High Distinction), Sybille Hess (M.Sc., High Distinction) currently advising 2 Ph.D. and 3 M.Sc. students.

Responsibilities: Mentoring directed-study students by assisting with experimental design, data collection, data analysis and interpretation, and preparing manuscripts for publication

Professional society and organization affiliations:

- Women in Science initiatives (local and international)
- Society for Integrative and Comparative Biology
- Society for Experimental Biology (society ambassador, 2012-present, co-chair of women in science)
- Canadian Society of Zoologists (election teller, April 2009, student counsellor, May 2007-May 2009)
- UBC Comparative Physiology Research Group (student liaison, August 2005-August 2008)
- Marine Eco-physiology Research Society (co-founder & president, July 1999-May 2003)
- Omicron Delta Kappa & Gamma Beta Phi Academic Honour Societies
- Phi Sigma Biological Honour Society
- UWF Graduate Student Association
- American Society of Ichthyology and Herpetology
- American Elasmobranch Society
- American Association for the Advancement in Science, Excellence in Science Program
- American Fisheries Society
- Red Snapper Conservation Association
- Gulf Coast Environmental Defense

Reviewer, grant proposals: Marine Fisheries Initiative (USA), SeaGrant (USA), NOAA (USA)

Reviewer, scientific journals (26 papers for 18 journals): *Aquaculture, Aquatic Toxicology, Journal of Fish Biology, Fishery Bulletin, Journal of Experimental Zoology, Journal of Experimental Biology, Marine Biology Research, Deep Sea Research, Journal of Comparative Physiology, Fisheries Research, Fish & Fisheries, Fish Physiology & Biochemistry, Fisheries Science, Journal of Experimental Marine Biology & Ecology, North American Journal of Fisheries Management, Canadian Journal of Fisheries & Aquatic Sciences, Transactions of the American Fisheries Society, African Journal of Marine Science, Nature Climate Change*

AREAS OF TRAINING AND CERTIFICATION:

- Women in Research Leadership, University of Queensland School of Business (2014)
- Introduction to Conflict Coaching (2014), Conflict Coaching International
- Early Career Researcher Intensive supervisory & advanced supervisory training (2012 & 2013)
- eConnect (Brisbane, QLD) media training, communicating science to the media
- CPR, First Aid, Anaphylaxis, Asthma, AED, and O_2 administration training (up-to-date)
- Introduction to Scholarly Portfolios Workshop
- Canadian Council on Animal Care (CCAC) Experimental Animal User Certification
- NAUI advanced diver certification & NAUI rescue diver certification
- NASDS open-water SCUBA certification
- SSI Nitrox certification
- UWF scientific diver certification
- City University of Hong Kong laboratory safety certification
- University of West Florida hazardous waste & lab safety training
- University of British Columbia chemical safety radionuclide safety and methodology
- University of British Columbia laboratory chemical safety
- National Safety Council defensive driving certification
- United States Power Squadron Boat Smart program

- Stranding Center of the Emerald Coast Wildlife Refuge, Inc., marine mammal stranding response and necropsy certification
- UWF Research Grantsmanship seminar

PRESS AND MEDIA COVERAGE:

237) Consortium for ocean leadership "Fish living near the equator will not thrive in the warmer oceans of the future" 12 February 2014
236) Raw Story "Climate change threatens fish living near the equator" 18 May 2014
235) F1000 Prime – Article recommendation by J. Mourier and J. Claudet, 15 May 2014
234) Environmental Research Web "Fish from acidic waters less able to smell predators" 22 April 2014
233) Wildlife Extra "Climate change stops reef fish detecting predators" 22 April 2014
232) Press-News.org "Fish from acidic ocean waters less able to smell predators" 14 April 2014
231) The Australian Institute of Marine Sciences – Media "Ocean acidification robs reef fish of their survival instinct" 14 April 2014
230) Lakes Mail (New South Wales) "Acidic water robs reef fish of survival instinct" 14 April 2014
229) Dunya News ""Fish losing survival instinct in acidic oceans, study says" 14 April 2014
228) Bright Surf "Fish from acidic waters less able to smell predators" 15 April 2014
227) CRI English (China) "Fish losing survival instinct, study says" 14 April 2014
226) Bild der Wisserschaft "Versauertes Wasser: Fische riechen Räuber nicht" by Martin Vieweg 14 April 2014
225) News24 "Study: Fish are losing their survival instinct" 14 April 2014
224) Hindustan Times "Fish business? Inhabitants losing survival instinct to acidic oceans" 14 April 2014
223) Eurasia Review "Fish from acidic oceans waters less able to smell predators" 14 April 2014
222) The Cambodia Herald "Ocean acidification robs reef fish of their fear of predators" 14 April 2014
221) SPASIFIKmag.com "Fish losing survival instinct due to climate change" 17 April 2014
220) The Namibian "Fish losing survival instinct in acidic oceans, study says" 17 April 2014
219) Reuters Newswires, ANZ, General News "Increased CO2 levels make fish unafraid of predators" 15 April 2014
218) SBS Ethnic Radio, Melbourne 06:00 News, Newsreader "A study by the James Cook University…" 15 April 2014
217) Radio National Canberra, Breakfast (Early) with Fran Kelly, "Interview with Dr. Jodie Rummer…" 15 April 2014
216) Townsville Bulletin, Townsville QLD "Fish lose drive to survive in acidic oceans" 15 April 2014
215) Herald Sun, Melbourne "Fish failing acid test" 15 April 2014
214) Adelaide Advertiser "Fish don't smell a rat" 15 April 2014
213) 666 ABC Canberra, AM Radio with Mark Colvin "Ocean acidification make fish gamble with their lives – study" by Felicity Ogilvie 14 April 2014
212) Radio National Canberra, AM Radio with Mark Colvin "Ocean acidification make fish gamble with their lives – study" by Felicity Ogilvie 14 April 2014
211) 2MCE Radio "Insight: Ocean acidification on the Great Barrier Reef" by Reece Middleton 22 April 2014
210) ABC PM "Ocean acidification making fish do strange things" by Felicity Ogilvie 14 April 2014
209) ABC Radio Australia "Fish losing survival instinct due to climate change: study" 15 April 2014
208) Advanced Studies "The perils of ocean acidification" by James Olds 14 April 2014
207) AM Authint Mail "Fish lose fear factor in acidic seas" 15 April 2014
206) Australia Network News "Fish losing survival instinct due to climate change: study" 15 April 2014

205) Bangkok Post "Fish losing survival instinct in acidic oceans, study says" 14 April 2014
204) Bangkok Post "Fish losing survival instinct, study says" 14 April 2014
203) BBC Newshour "Acidic water makes fish 'lose survival instinct'" 14 April 2014
202) Before it's News "Entire marine food chain at risk from rising CO2 levels in water" 19 April 2014
201) Blue & Green Tomorrow "Fish become 'bolder' and more vulnerable to predators in CO2-rich oceans" by Ilaria Bertini 14 April 2014
200) Brantford Expositor "Increased CO2 levels make fish unafraid of predators" 15 April 2014
199) Business Day Live "Fish lose fear factor in acidic seas" 15 April 2014
198) Business Standard "Acidic water robbing fish of survival instinct" 14 April 2014
197) Bustle "Ocean acidification makes fish swim toward predators, and you can imagine how well that turns out" by Isobel Markham 15 April 2014
196) Cairns Post "Research has shown just how risky fish get when on acid" 15 April 2014 by Kimberley Vlasic
195) Canberra Times "Acidic water robs reef fish of survival instinct" 13 April 2014 by Bridie Smith
194) Channel News Asia "Climate change affecting fishes' survival instinct" 14 April 2014
193) Climate Central "Rising CO2 levels treaten entire marine food chain" by Oliver Milman 19 April 2014
192) Climate News Network "Fish on acid lose fear of predators" 15 April 2014 by Tim Radford
191) Climate Progress "Ocean acidification could make fish lose their fear of predators, study finds" by Katie Valentine 14 April 2014
190) Climate Wire: Oceans "Fish living in CO2-saturated waters lose ability to sense predators – study" by Stephanie Paige Ogburn, 14 April 2014
189) Cook Island News "Fish losing survival instinct" 15 April 2014
188) Delhi Daily News "Fish losing survival instinct due to ocean pollution" 15 April 2014
187) Design & Trend "Fish are living their survival instincts due to ocean pollution" by Mary Nichols 16 April 2014
186) Digital Journal "Op-Ed: Ocean acidity causes fish to go looking for their predators" by Paul Wallis 14 April 2014
185) Eco News "Climate change stops fish sensing danger" by David Twomey 15 April 2014
184) ECOS Magazine "Fish in acidic ocean lose fear of predators" 14 April 2014
183) Epoch Times "Lost in an acid sea: A fish's sense of smell" by Brian Bienkowski 19 April 2014
182) First Post World "Climate change causing fish to lose survival instinct: study" 14 April 2014
181) FIS "Acidic waters make fish prone to predators" 16 April 2014
180) French Tribune "Increasing acidic levels in oceans makes fish lose their survival instinct" by Brenda McGregor 15 April 2014
179) Frontier Post "Fish losing survival instinct in acidic oceans: study" 15 April 2014
178) Futurity: Earth and Environment "Fish in acidic water less able to smell predators" 15 April 2014
177) Georgia Tech News: Earth and Environment "Fish From Acidic Ocean Waters Less Able to Smell Predators" 14 April 2014 by Brett Israel
176) Grist.org "Fearless teenage fish don't run from climate change, death" by Amelia Urry 15 April 2014
175) Hindustan Times "Fishy business? Inhabitants losing survival instinct to acidic oceans" 14 April 2014
174) HNGN "Fish becoming more attracted to predators; losing survival instinct as ocean pollution increases, study finds" by Oulimata Ba 15 April 2014
173) HotWhopper "A fishy failure at WUWT – not so spectacular" by Miriam O'Brian (Sou) 15 April 2014
172) iAfrica "Fish losing survival instinct" 13 April 2014
171) Independent Australia "Fish on acid lose fear of predators" 17 April 2014
170) Interaksyon "Riskier behavior: Fish losing survival instinct in acidic oceans - study" 14 April 2014
169) Irish Examiner "Fish losing their survival instinct, research reveals" by Ciaran Donovan 15 April 2014

168) James Cook University News "Fish behaving badly on acid" 14 April 2014
167) Kitsap Sun "Rising CO2 levels threaten entire marine food chain" by Oliver Milman 20 April 2014
166) la Croix "Les gaz d'échappement menacent aussi les poisons" 15 April 2014
165) Laboratory Equipment "Fish from acidic waters less able to smell" 14 April 2014
164) Live Mint and the Wall Street Journal "Fish losing survival instinct in acidic oceans: study" 14 April 2014
163) Malay Mail Online "Fish losing survival instinct in acidic oceans: study says" 14 April 2014
162) Motherboard "More Evidence that Ocean Acidification Turns Fish Into Bait" by Michael Byrne 13 April 2014
161) Naharnet "Study: Fish losing survival instinct in acidic oceans" 14 April 2014
160) Nature World News "Fish unable to detect predators in acidic environments" by Anthony Barstow 14 April 2014
159) New Straits Times "Increased CO2 levels make fish unafraid of predators" 15 April 2014
158) New Tang Dynasty Television "New study reveals: Fish losing survival instinct due to climate change" 14 April 2014
157) News Tonight Africa "Climate change altering behavior of fish in coral reefs" by Chris Mokaba 15 April 2014
156) Newswise "Fish from acidic ocean waters less able to smell predators" 13 April 2014
155) Ocean Acidification International Coordination Centre "Behavioural impairment in reef fishes caused by ocean acidification at CO2 seeps" 14 April 2014
154) Ocean Acidification International Coordination Centre "Lost in an acid sea: a fish's sense of smell" 16 April 2014
153) Oman Daily Observer "Fish losing survival instinct in acidic oceans" 14 April 2014
152) Phys.org "Fish from acidic waters less able to smell predators" 13 April 2014
151) PNG Edge "Fish losing survival instinct" 15 April 2014
150) Practical Fish Keeping "Fish take more risks in acidic oceans" 17 April 2014
149) R&D Magazine "Fish from acidic ocean waters less able to smell predators" 16 April 2014
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