

Craig A. Layman

Senior Fellow—Center for Energy, Environment, and Sustainability
Research Professor—Department of Biology
Wake Forest University
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EDUCATION

- 2004 Ph.D. Texas A & M University, Ecology and Evolution
Minor Concentration in Philosophy
- 1999 M.S. University of Virginia, Environmental Sciences
- 1996 B.A. University of Virginia, Triple Major: Biology, Economics, and Environmental Sciences

PROFESSIONAL APPOINTMENTS

- 2020-Present *Senior Fellow*, Center for Energy, Environment, and Sustainability, Wake Forest University
- 2020-Present *Research Professor*, Department of Biology, Wake Forest University
- 2017-2019 *Professor*, Chancellor's Faculty Excellence Fellow, Department of Applied Ecology, North Carolina State University
- 2013-2017 *Associate Professor*, Chancellor's Faculty Excellence Fellow, Department of Applied Ecology, North Carolina State University
- 2012-13 *Associate Professor*, Florida International University
- 2006-2012 *Assistant Professor*, Florida International University
- 2004-2006 *Gaylord Donnelley Postdoctoral Fellow*, Yale University
- 2003-2004 *Fulbright Fellow*, Venezuela

EDITORSHIP

- 2019-Present *Freelance Science Writer, Editor, and Consultant*
- 2019-Present *Head Editor*, Caribbean Naturalist (Eagle Hill Publications)
- 2019-Present *Special Content Editor*, Food Webs (Elsevier)
- 2019-Present *Content and Language Editor*, Cactus Communications (India), Bioedit (UK), The Expert Editor (Australia), EditorBar (China)
- 2011-Present *Editorial Board*, Oecologia (Springer)

2016-2019	<i>Editor-in-Chief</i> , Food Webs (Elsevier)
2008-2019	<i>Editorial Board</i> , Caribbean Naturalist (Eagle Hill Publications)
2008-2011	<i>Assistant Editor</i> , PLoS One (Public Library of Science)

GRANTS AWARDED

National Science Foundation, “Fish aggregations and biogeochemical hot spots across regional environmental gradients,” \$657,849 (OCE 1405198, 2014-2019).

National Geographic Society, “Exploring the role of biological factors in widespread mangrove die-off: A citizen science-based approach,” \$29,800.

National Fish and Wildlife Foundation, “New geographic and ecological connections between hawksbill nesting and foraging to bolster Caribbean conservation,” \$25,000.

National Science Foundation, “RAPID: An interdisciplinary approach to elucidating the causes of widespread mangrove die-off,” \$75,187 (OCE 1405198, 2015-2016).

U.S. Fish and Wildlife Service, “Integrated methods for controlling invasive lionfish,” \$15,482 (205-2016).

National Science Foundation, “CAREER: Assessing effects of ecosystem fragmentation using novel measures of trophic structure as part of a broad educational outreach program,” \$803,449 (OCE 0746164, 2008-13).

Loxahatchee River District, “Oyster reef fauna monitoring,” \$177,000 (2007-2013).

FIU Faculty Support Research program, “Evolutionary change in The Bahamas mosquitofish: anthropogenic drivers of divergent selection environments,” \$19,554. (2012-2013).

National Science Foundation, “Collaborative Research: Human-induced phenotypic variation in an endemic livebearing fish,” \$393,996 (DEB 0842196, 2009-12, with Brian Langerhans, North Carolina State University).

CSA International, “Oyster reef restoration monitoring,” \$84,000 (2009-2011).

Perry Institute of Marine Science, “Development of a West Andros Marine Reserve,” \$33,000 (2007-9).

Bonefish-Tarpon Unlimited, “Identifying bonefish spawning migration routes,” \$15,350 (2008).

Florida International University, “Developing the capacity to analyze RNA-DNA ratios as a means to evaluate implications of intraspecific niche variation,” \$17,000 (2008-9).

Acorn Alcinda Foundation Conservation Grant, \$2,500 (annual, 2002-2017).

South Florida Water Management District, “Developing ecological indicators for managing freshwater inflows to the Loxahatchee River,” \$35,000 (2009).

South Florida Water Management District, “Monitoring snook movement patterns in the Loxahatchee River,” \$20,000 (2008)

Association for the Coral Environment, “Nassau grouper research program,” \$25,000 (2007-2008).

RJ/Kose in conjunction with The Nature Conservancy, "Developing indicators for conservation and restoration of critical nursery habitats in the tropical Western Atlantic," \$100,000 (2005-2005).

Selected Student Fellowships/Awards as Primary Mentor

Andrew Maurer, National Science Foundation Graduate Research Fellowship (2017-present).

April Lamb, National Science Foundation Graduate Research Fellowship (2017-2020).

Andrew Maurer, Fulbright Fellowship in Antigua, 2018.

Sean Giery, National Science Foundation, Doctoral Dissertation Improvement Grant, "Divergent sexual selection and behavioral isolation due to anthropogenic ecosystem fragmentation" (2014-2016).

Ryann Rossi, National Science Foundation Graduate Research Fellowship (2014-present).

Elizabeth Stoner, Environmental Protection Agency STAR Fellowship (2011-2014).

Lauren Yeager, National Science Foundation Graduate Research Fellowship (2009-2012).

PUBLICATIONS

139. Layman, C.A., Allgeier, J.E., and Giery, S. T. 2020. Moving beyond semantics: Advancing restoration with food web approaches. *Food Webs*.

138. Layman, C.A. and Rypel, A. L. 2020. Secondary production is an underutilized metric to assess restoration initiatives. *Food Webs*.

137. Archer, S.K., Kahn, A.S., Thiess, M., Law, L, Leys, S.P., Johannessen, S.C., Layman, C.A., Burke, L., and Dunham, A. 2020. Foundation species abundance influences food web topology on glass sponge reefs. *Frontiers in Marine Science* 7:549478.

136. Layman, C.A. and Allgeier, J.E. *In press*. Artificial reefs viewed from the bottom-up: an ecosystem ecology perspective. *Journal of Applied Ecology*.

135. Allgeier, J.E., Wenger, S., and Layman, C.A. 2020. Taxonomic identity best explains variation in body nutrient stoichiometry in a diverse marine animal community. *Scientific Reports* 10:13718.

134. Allgeier, J.E., Cline, T.J., Walsworth, T.E., Wathen, G., Layman, C.A., and Schindler, D.E. 2020. Individual behavior drives ecosystem function and the impacts of harvest. *Science Advances* 6(9):eaax8329.

133. Allgeier, J.E., Andskog, M.A., Hensel, E., Appaldo, R., Layman, C.A., and Kemp, D.W. 2020. Re-wiring coral: Anthropogenic nutrients shift diverse coral-symbiont nutrient and carbon interactions toward algal dominance. *Global Change Biology* 26:5588-5601.

132. Rossi, R.E., Archer, S.K. Giri, C. and Layman, C.A. 2020. The role of multiple stressors in a dwarf red mangrove (*Rhizophora mangle*) dieback. *Estuarine, Coastal and Shelf Science* 237:106660.

131. Maurer, A.S., Stapleton, S.P., and Layman, C.A. 2019. Impacts of the Caribbean *Sargassum* influx on sea turtle nesting ecology. *Proceedings of the Gulf and Fisheries Institute*. 71:327-329.

130. Hensel, E., Allgeier, J.E., and Layman, C.A. 2019. Effects of predator presence and habitat complexity on reef fish communities in The Bahamas. *Marine Biology* 166:136.
129. Lyon, R.P., Eggleston, D.B., Bohnenstiehl, D.R., Layman, C.A., Ricci, S.W., and Allgeier, J.E. 2019. Fish community structure, habitat complexity, and soundscape characteristics of patch reefs in a tropical, back-reef system. *Marine Ecology Progress Series* 609:33-48.
128. Giery, S.T. and Layman, C.A. 2019. Ecological consequences of sexual selection. *Quarterly Review of Biology* 94(1):29-74.
127. Bogdanoff, A.K., Mostowy, J., Peake, J., Layman, C.A., Bermudez, A.B., Baca, C.G., Palacios, N.H., Gonzalez, D.T.M., Xicoténcatl, M.R.B., and Morris, J.A. Jr. 2018. A brief description of invasive lionfish *Pterois volitans* diet composition in the Arrecifes de Cozumel National Park. *Food Webs* e00104.
126. Hensel, S., Wenclawski, S., and Layman, C.A. 2018. Using a small, consumer-grade drone to identify and count marine megafauna in shallow habitat. *Latin American Journal of Aquatic Research* 46(5):1025-1033.
125. Allgeier, J.E., Layman, C.A., Montaña, C.G., Buhler, S., Appaldo, R., and Rosemond, A.D. 2018. Anthropogenic versus fish-derived nutrient effects on seagrass community structure and function. *Ecology* 99(8):1792-1801.
124. Peake, J., Bogdanoff, A.K., Layman, C.A., Castillo, B., Reale-Munroe, K., Chapman, J., Dahl, K., Patterson, W., Eddy, C., Faletti, K., Higgs, N., Johnston, M.A., Muñoz, R.C., Sandell, V., Villasenor-Derbez, J.C., and Morris, J.A. Jr. 2018. Feeding ecology of invasive lionfish (*Pterois volitans* and *Pterois miles*) in the temperate and tropical western Atlantic. *Biological Invasions*. <https://doi.org/10.1007/s10530-018-1720-5>.
123. Kenworthy, M.D., Grabowski, J.H., Layman, C.A., Sherwood, Graham, D., Powers, S.P., Peterson, C.H., Gittman, R.K., Keller, D.A., and Fodrie, F.J. 2018. Movement ecology of a mobile predatory fish reveals limited habitat linkages within a temperate estuarine seascape. *Canadian Journal of Fisheries and Aquatic Sciences* 75(11):1990-1998.
122. Henson, M.N., Aday, D.D., Rice, J.A. and Layman, C.A. 2018. Assessing the influence of tilapia on sport species in North Carolina reservoirs. *Transactions of the American Fishery Society* 147:350-362.
121. Archer, S.K., Buhler, S. and Layman, C.A. 2018. Ambient nutrient availability drives the outcome of an interaction between a sponge (*Halichondria melanadocia*) and a seagrass (*Thalassia testudinum*). *Journal of Ecology* 503:86-91.
120. Rossi, R.E., Giery, S.T., Bonnema, E.W., Todd, A.L., and Layman, C.A. 2017. Characterizing trophic ecology of the checkered puffer (*Sphoeroides testudieus*). *Latin American Journal of Aquatic Research*. 45(5): 1075-1078.
119. Araújo, M.S., R. B. Langerhans, R.B., Layman, C.A. 2017. Body streamlining is related to higher growth rates in Bahamian mosquitofish. *Evolutionary Ecology Research* 18(4):383-391.
118. Olds, A.D., Vargas-Fonseca, E., Connolly, R.M., Gilby, B.L., Huijbers, C.H., Hyndes, G.A., Layman, C.A., Whitfield, A.K., and Schlacher, T.A. 2017. Ecology of fish in surf zones of beaches: a global review. *Fish and Fisheries*. 00:1–12. <https://doi.org/10.1111/faf.12237>.
117. Archer, S.K., Stevens, J.L., Rossi, R.E., Matterson, K. and Layman, C.A. 2017. Abiotic

- conditions drive significant variability in nutrient processing by a common Caribbean sponge, *Ircinia felix*. *Limnology and Oceanography* 62:1783-1793.
116. Giery, S.T. and Layman, C.A. 2017. Dissolved organic carbon and unimodal variation in sexual signal coloration in mosquitofish: a role for light limitation? *Proceedings of the Royal Society of London B*. 284: 20170163.
115. Sweatman, J.L., Layman, C.A., and Fourqurean, J.W. 2017. Habitat fragmentation has weak impacts on aspects of ecosystem functioning in a sub-tropical seagrass bed. *Marine Environmental Research* 126:95-108.
114. Allgeier, J.E., Burkepile, D.E., and Layman, C.A. 2017. Animal pee in the sea: consumer-mediated nutrient dynamics in the world's oceans. *Global Change Biology*. doi: 10.1111/gcb.13625.
113. Pinheiro, I.E., Layman, C.A., Castello, J.P. and Leite, T.S. 2017. Trophic role of demersal predators on rocky reefs in an Equatorial Atlantic Ocean Island. *Journal of Applied Ichthyology* 33:47-53.
112. Albo-Puigserver, M., Navarro, J., Coll, M., Layman, C.A., and Palomera, I. 2016. Trophic structure of pelagic fish species in the northwestern Mediterranean Sea. *Marine Environmental Research* 117:27-35.
111. Layman, C.A., Allgeier, J.E., and Montaña, C.G. 2016. Mechanistic evidence of enhanced production on artificial reefs: A case study in a Bahamian seagrass ecosystem. *Ecological Engineering*. 95:574-579.
110. Allgeier, J.E., Valdivia, A., Cox, C., Bruno, J.F., and Layman, C.A. 2016. Fishing down nutrients on coral reefs. *Nature Communications* DOI: 10.1038/ncomms12461.
109. Stoner, E.W., Sebilian, S.S., Layman, C.A. 2016. Zooxanthellae densities in upside-down jellyfish, *Cassiopea* spp., from coastal habitats of The Bahamas. *Revista de Biología Marina y Oceanografía*. 51:203-208.
108. Antón, A., Cure, K., Layman, C.A., Puntilla, R., Simpson, M.S., and Bruno, J.F. 2016. Prey naiveté to invasive lionfish (*Pterois volitans*). *Marine Ecology Progress Series* 544:257-269.
107. Yeager, L.A., Stoner, E.W., Peters, J.R. and Layman, C.A. 2016. A terrestrial-aquatic food web subsidy is potentially mediated by multiple predator effects on an arboreal crab. *Journal of Experimental Marine Biology and Ecology* 475:73-79.
106. Layman, C.A., Giery, S.T., Buhler, S., Rossi, R., Penland, T., Henson, M.N., Bogdanoff, A.K., Cove, M.V., Irizarry, A.D., Schalke, C.M., and Archer, S.K. 2015. A primer on the history of food web ecology: Fundamental contributions of fourteen researchers. *Food Webs* 4:14-24.
105. Riesch, R., Easter, T., Layman, C.A., and Langerhans, R.B. 2015. Rapid human-induced divergence of life history strategies in Bahamian live-bearing fishes (family Poeciliidae). *Journal of Animal Ecology* 84(6):1732-1743.
104. Giery, S.T. and Layman, C.A. 2015. Interpopulation variation in a condition-dependent signal: predation regime affects signal intensity and reliability. *American Naturalist* 186(2): 187-195.
103. Allgeier, J.E., Wegner, S., Rosemond, A.D., Schindler, D.E., and Layman, C.A. 2015. Metabolic theory and biodiversity, but not stoichiometry, best predict nutrient recycling in a diverse food web. *Proceedings of the National Academy of Sciences* 112(20):E2640-E2647.

102. Giery, S.T., Layman, C.A., and Langerhans, R.B. 2015. Anthropogenic ecosystem fragmentation drives shared and unique patterns of sexual signal divergence among three species of Bahamian mosquitofish. *Evolutionary Applications* 8(7):679-691.
101. Stoner, E.W. and Layman, C.A. 2015. Bristle worms attack: Benthic jellyfish are not trophic dead ends. *Frontiers in Ecology and the Environment* 13:226-227.
100. Peters, J.R., Yeager, L.A., and Layman, C.A. 2015. Comparison of fish assemblages in restored and natural mangrove habitats along urban shorelines of Biscayne Bay, Florida. *Bulletin of Marine Science* 91(2):125-139.
99. Huijbers, C.M., Nagelkerken, I. and Layman, C.A. 2015. Fish movement from nursery bays to coral reefs: a matter of size? *Hydrobiologia* 750:89-101.
98. Archer, S.K., Stoner, E.W., and Layman, C.A. 2015. Context dependent species interaction between a sponge (*Halichondria melanadocia*) and a seagrass (*Thalassia testudinum*). *Journal of Marine Biology and Ecology* 465:33-40.
97. Montaña, C., Layman, C.A., and Winemiller, K.O. 2015. Species-area relationship within benthic Habitat patches of a tropical floodplain river: an experimental test. *Austral Ecology* 40(3):331-336.
96. Heinen-Kay, J.L., Noel, H.G., Layman, C.A., and Langerhans, R.B. 2014. Human-caused habitat fragmentation drives rapid divergence of male genital morphology in Bahamian mosquitofish. *Evolutionary Applications* 7(10):1252-1267.
95. Fodrie, J.F., Yeager, L.A., Grabowski, J.H., Layman, C.A., Sherwood, G.D., and Kenworthy, M.D. 2015. Measuring individuality in habitat use across complex landscapes: approaches, constraints, and implications for assessing resource specialization. *Oecologia* 178(1):75-87.
94. Nifong, J.C., Layman, C.A., and Silliman, B.R. 2014. Size, sex, and individual-level behavior drive intra-population variation in cross-ecosystem foraging of a top-predator. *Journal of Animal Ecology* 84:35-48.
93. Layman, C.A., Newsome, S.D., and Crawford, T.G. 2015. Individual specialization within populations: emerging areas of study. *Oecologia* 178(1):1-4.
92. Chacin, D.H., Yeager, L.A., Giery, S.T., Layman, C.A., and Langerhans, R.B. 2015. Does hydrologic fragmentation affect coastal bird communities? A study from Abaco Island, The Bahamas. *Wetlands Ecology and Management* 23(3):551-557.
91. Stoner, E.W., Yeager, L.A., Sebilian, S.S., Sweatman, J.L. and Layman, C.A. 2014. Modification of a seagrass community by benthic jellyfish blooms and nutrient enrichment. *Journal of Experimental Marine Biology and Ecology* 461:185-192.
90. Zapata, M.J., Yeager, L.A., and Layman, C.A. 2014. Day-night patterns in natural and artificial patch reef fish assemblages of The Bahamas. *Caribbean Naturalist* 18:1-15.
89. Layman C.A., Jud, Z.R., and Nichols, P. 2014. Lionfish alter benthic invertebrate assemblages. *Marine Biology* 161(9):2179-2182.
88. Allgeier, J.E., Layman, C.A., Mumby, P.J., and Rosemond, A.D. 2015. Biogeochemical implications of biodiversity and community structure across multiple coastal ecosystems. *Ecological Monographs* 85(1):117-132.
87. Archer, S.K., Allgeier, J.E., Semmens, B.X., Heppell, S.A., Pattengill-Semmens, C.V., Rosemond,

- A.D., Bush, P.G., McCoy, C.M., Johnson, B.C., and Layman, C.A. 2015. Hot moments in spawning aggregations: implications for ecosystem-scale nutrient cycling. *Coral Reefs* 34:19-23.
86. Layman C.A., Jud, Z.R., Archer, S.K. and Riera, D. 2014. Provision of ecosystem services by artificial structures in a highly impacted estuary. *Environmental Research Letters* 9 (2014) 044009.
85. Yeager, L.A., Stoner, E.W., Zapata, M.J., and Layman, C.A. 2014. Does landscape context mediate the nature of density dependence for a coral reef fish? *Ecological Applications* 24:1833-1841.
84. Winemiller, K.O., Roelke, D.L., Cotner, J.B., Montoya, J.V., Sanchez, L., Castillo, M.M., Montaña, C. and Layman, C.A. 2014. Pulsing hydrology determines top-down control of basal resources by fish and meiofauna in a tropical river-floodplain ecosystem. *Ecological Monographs* 81:621-635.
83. Stoner, E.W., Yeager, L.A., and Layman, C.A. 2014. Effects of the epibenthic jellyfish, *Cassiopea* spp., on faunal community structure of Bahamian seagrass beds. *Caribbean Naturalist* 12:1-10.
82. Yeager, L.A., Layman, C.A., and Hammerschlag-Peyer, C.M. 2014. Diet variation of a generalist fish predator, Gray snapper *Lutjanus griseus*, across an estuarine gradient: trade-offs of quantity for quality? *Journal of Fish Biology* 85(2):264-277.
81. Araújo, M.S., Langerhans, R.B., Giery, S.T. and Layman, C.A. 2014. Ecosystem fragmentation drives increased diet variation in an endemic livebearing fish of The Bahamas. *Ecology and Evolution* 4(16):3298-3303.
80. Allgeier, J.E., Layman, C.A., Mumby, P.J., Rosemond, A.D. 2014. Consistent nutrient storage and supply mediated by diverse fish communities in coral reef ecosystems. *Global Change Biology* 20(8):2459-2472.
79. Côté, I.M., Darling, E.S., Malpica-Cruz, L., Smith, N.S., Green, S.J., Curtis-Quick, J., and Layman, C.A. 2014. What doesn't kill you makes you wary? Effect of repeated culling on the behaviour of an invasive predator. *PLoS One* 9(4): e94248.
78. Jud, Z.R., Layman C.A. and Nichols, P.K. 2015. Broad salinity tolerance in the invasive lionfish, *Pterois* spp., facilitates estuarine invasion. *Environmental Biology of Fishes* 98:135-143.
77. Layman C.A., Jud, Z.R., Arrington, D.A., and Sabin, D. 2014. Using fish behavior to assess habitat quality of a restored oyster reef. *Ecological Restoration* 32(2):140-143.
76. Bruno, J.F., Valdivia, A., Hackerott, S., Cox, C.E., Green, S.J., Côte, I.M., Akins, L., Layman, C.A., Precht, W.F. 2013. Testing the grouper biocontrol hypothesis: A response to Mumby et al. 2013. *Peer J Pre-prints* 1:e139v1.
75. Giery, S.T., Lemoine, N.P., Hammerschlag-Peyer, C.M., Abbey-Lee, R.N. and Layman, C.A. 2013. Bidirectional trophic linkages couple canopy and understory food webs. *Functional Ecology* 27(6):1436–1441.
74. Hackerott, S., Valdivia, A., Green, S.J., Côté, I.M., Cox, C.E., Akins, L., Layman, C.A., Precht, W.F., and Bruno, J.F. 2013. Native predators do not influence invasion success of Pacific lionfish on Caribbean reefs. *PLoS One* 8(7): e68259.
73. Hammerschlag-Peyer, C.M., Allgeier, J.E., and Layman, C.A. 2013. Predator effects on faunal community composition in shallow seagrass beds of The Bahamas. *Journal of Experimental Marine Biology and Ecology* 446:282-290.
72. Burkepille, D.E., Allgeier, J.E., Shantz, A.A., Pritchard, C.E., Lemoine, N., Bhatti, L., and Layman,

- C.A. 2013. Nutrient supply from fishes facilitates macroalgae and suppresses corals in a Caribbean coral reef ecosystem. *Scientific Reports* 3:1493 DOI 10.1038.
71. Heithaus, M.R., Vaudo, J.J., Kreicker, S., Layman, C.A., Krützen, M., Burkholder, D.A., Gastrich, K., Bessey, C., Sarabia, R., Cameron, K., Wirsing, A., Thomson, J.A., and Dunphy-Daly, M.M. 2013. Apparent resource partitioning and trophic structure of large-bodied marine predators in a relatively pristine seagrass ecosystem. *Marine Ecology Progress Series* 481:225-237.
70. Allgeier, J.E. Yeager, L.A., and Layman, C.A. 2013. Consumers regulate nutrient limitation regimes and primary production in seagrass ecosystems. *Ecology* 94(2):521-529.
69. Layman, C.A., Allgeier, J.E., Yeager, L.A., and Stoner, E.W. 2013. Thresholds of ecosystem response to nutrient enrichment by aggregating fishes. *Ecology* 94(2):530-536.
68. Yeager, L.A., Acevedo, C.L. and Layman, C.A. 2012. Effects of seascape context on abundance, condition and secondary production of a coral reef fish, *Haemulon plumieri*. *Marine Ecology Progress Series* 462:231-240.
67. Layman, C.A., Araújo, M.S., Boucek, R., Harrison, E., Jud, Z.R., Matich, P., Hammerschlag-Peyer, C.M., Rosenblatt, A.E., Vaudo, J.J., Yeager, L.A., Post, D.M., and Bearhop, S. 2012. Applying stable isotopes to examine food web structure: an overview of analytical tools. *Biological Reviews* 87(3):545-562.
66. Layman, C.A. and Allgeier, J.E. 2012. Characterizing trophic ecology of generalist consumers: a case study on the invasive lionfish *Pterois volitans* in The Bahamas. *Marine Ecology Progress Series* 448:131-141.
65. Hammerschlag-Peyer, C.M. and Layman, C.A. 2012. Mechanisms driving resource use variation in an abundant coastal fish predator. *Bulletin of Marine Science* 88(2):211-230.
64. Jud, Z.R. and Layman, C.A. 2012. Site fidelity and movement patterns in the invasive lionfish, *Pterois* spp. *Journal of Experimental Marine Biology and Ecology* 414-415:69-74.
63. Allgeier, J.E., Rosemond, A.D., and Layman, C.A. 2011. Variation in nutrient limitation and seagrass nutrient content in Bahamian tidal creeks. *Journal of Experimental Marine Biology and Ecology* 407:330-336.
62. Araújo, M.S., Bolnick, D.I., and Layman, C.A. 2011. The ecological causes of individual specialization. *Ecology Letters* 14:948-958.
61. Hammerschlag-Peyer, C.M., Yeager, L.A., Araújo, M.S. and Layman, C.A. 2011. A hypothesis-testing framework for studies investigating ontogenetic niche shifts using stable isotope ratios. *PLoS One* 6(11):e27104.
60. Valentine-Rose, L., Rypel, A.L., and Layman, C.A. 2011. Community secondary production as a measure of ecosystem function: a case study with aquatic ecosystem fragmentation. *Bulletin of Marine Science* 87(4):913-937.
59. Montaña, C.G., Layman, C.A. and Winemiller, K.O. 2011. Gape size influences seasonal patterns of piscivore diets in three Neotropical rivers. *Neotropical Ichthyology* 9(3):647-655.
58. Jud, Z.R., Layman, C.A., Lee, J.A., and Arrington, D.A. 2011. Recent invasion of a Florida estuarine/riverine system by the lionfish, *Pterois volitans*. *Aquatic Biology* 13:21-26.
57. Stoner, E.W., Layman, C.A., Yeager, L.A., and Hassett, H. 2011. Effect of anthropogenic

- disturbance on abundance and size of the benthic jellyfish *Cassiopea* spp. *Marine Pollution Bulletin* 62(5):1109-1114.
56. Yeager, L.A., Allgeier, J.A. and Layman, C.A. 2011. Effects of habitat heterogeneity at multiple spatial scales on fish community assembly. *Oecologia* 167(1):157-168.
55. Yeager, L.A. and Layman, C.A. 2011. Energy flow to consumers in a sub-tropical oyster reef food web. *Aquatic Ecology* 45(2):267-277.
54. Montaña, C.G., Layman, C.A., and Taphorn, D.C. 2010. Inventario de la ictiofauna del Caño La Guardia, afluente del río Capanaparo (cuenca del Orinoco), estado Apure, Venezuela. *Biota Colombiana* 11:75-88.
53. Heithaus, E.R., Heithaus, P.A., Heithaus, M.R., Burkholder, D. and Layman, C.A. 2011. Trophic dynamics of a relatively pristine subtropical fringing mangrove community. *Marine Ecology Progress Series* 428:49-61.
52. Layman, C.A., Allgeier, J.E., Rosemond, A.D., Dahlgren, C.P., and Yeager, L.A. 2011. Marine Fisheries Declines Viewed Upside Down: Human Impacts on Consumer-Driven Nutrient Recycling. *Ecological Applications* 21(2):343-349.
51. Valentine-Rose, L. and Layman, C.A. 2011. Response of fish assemblage structure and function following restoration of two small Bahamian tidal creeks. *Restoration Ecology* 19(2):205-215.
50. Jud, Z.R., Shenker, J.M. and Layman, C.A. 2011. Dietary variation of age-0 tarpon (*Megalops atlanticus*) in anthropogenically-modified nursery habitats. *Environmental Biology of Fishes* 90(3):223-233.
49. Allgeier, J.E., Rosemond, A.D., and Layman, C.A. 2011. The frequency and magnitude of non-additive responses to multiple nutrient enrichment. *Journal of Applied Ecology* 48(1):96-101.
48. Grol, M.G.G., Nagelkerken, I., Rypel, A.L., and Layman, C.A. 2011. Simple ecological trade-offs give rise to emergent cross-ecosystem distributions of a coral reef fish. *Oecologia* 165:79-88.
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 18. Layman, C.A., Arrington, D.A., and Blackwell, M. 2005. Community-based collaboration restores tidal Flow to an island estuary (Bahamas). *Ecological Restoration* 23(1):58-59.
 17. Arrington, D.A., Winemiller, K.O., and Layman, C.A. 2005. Community assembly at the patch scale in a species-rich tropical river. *Oecologia* 144(1):157-167.
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 13. Layman, C.A., Jepsen, D.B., and Winemiller, K.O. 2004. Erratum: Structure of tropical river food webs revealed by stable isotope ratios. *Oikos* 107(1):222.
 12. Layman, C.A., Arrington, D.A., Langerhans, R.B and Silliman, B.R. 2004. Effects of Estuarine Fragmentation on Fish Assemblage Structure. *Bahamas Journal of Science* 12:29-38.
 11. Langerhans, R.B., Layman, C.A., Shokrollahi, A.M. and DeWitt, T.J. 2004. Predator-driven phenotypic diversification in *Gambusia affinis*. *Evolution* 58(10):2305-2318.
 10. Silliman, B. R., Layman, C. A., K. Geyer and Zieman, J.C. 2004. Predation by the black clawed mud

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9. Layman, C.A., Arrington, D.A., and Silliman, B.R. 2003. Underwater Visual Census Provides “Snapshot” Assessment for Tidal Connectivity Restoration (Bahamas). *Ecological Restoration* 21(12):132-133.
 8. Langerhans, R.B., Layman, C.A., Langerhans, A.K., and DeWitt, T.J. 2003. Habitat-associated morphological divergence in two Neotropical fish species. *Biological Journal of the Linnean Society* 80:689-698.
 7. Hoetinghaus, D., Layman, C.A., Arrington, D.A. and Winemiller, K.O. 2003. Spatiotemporal variation in fish assemblage structure in tropical floodplain creeks. *Environmental Biology of Fishes* 67(4):379-387.
 6. Hoetinghaus, D., Layman, C.A., Arrington, D.A. and Winemiller, K.O. 2003. Movement of *Cichla* spp. (Cichlidae) in a Venezuelan floodplain river. *Neotropical Ichthyology* 1(2):121-126.
 5. Silliman, B. R., Layman, C. A., and Altieri, A. 2003. Symbiosis between an alpheid shrimp and a xanthoid crab in salt marshes of mid-Atlantic states, USA. *Journal of Crustacean Biology* 23(4):876-879.
 4. Layman, C.A. and Silliman, B.R. 2002. Preliminary survey and diet analysis of juvenile fishes of an estuarine creek on Andros Island, Bahamas. *Bulletin of Marine Science* 70(1):199-210.
 3. Layman, C.A. and Smith, D.E. 2001. Sampling bias of minnow traps in shallow aquatic habitats on the Eastern Shore of Virginia. *Wetlands*. 21(1):145-154.
 2. Layman, C.A. 2000. Fish assemblage structure of the shallow ocean surf-zone on the Eastern Shore of Virginia barrier islands. *Estuarine Coastal and Shelf Science*. 51:201-213.
 1. Layman, C.A., Smith, D.E. and Herod, J.D. 2000. Seasonally varying importance of abiotic and biotic factors in marsh pond fish communities. *Marine Ecology Progress Series*. 207:155-169.

Manuscripts in review

- Archer, S.K. and Layman, C.A. *In review*. Sponges act as foundation species and initiate positive feedback loops in seagrass beds. *Journal of Experimental Marine Biology and Ecology*.
- Bilodeau, S.M., Layman, C.A., and Silman, M.R. *In review*. Benthic pattern formation in shallow tropical reefs: Is grazing sufficient to form grazing halos? *Landscape Ecology*.
- Bogdanoff, A.K., Layman, C.A., Fleming, J., Akins, J.L., and Morris, J.A. Jr. *In review*. Preliminary testing of artificial structures for potentially attracting and aggregating invasive lionfish (*Pterois volitans* and *Pterois miles*). *Gulf and Caribbean Research*.
- Bogdanoff, A.K., Shertzer, K.W., Layman, C.A., Chapman, J.K., Futerima, M., Solomon, J., Sabattis, J., Green, S., and Morris, J.A. Jr. *In revision*. Optimum lionfish yield: A non-traditional management concept or invasive lionfish (*Pterois* spp.) fisheries. *Biological Invasions*.
- Jud, Z.R. and Layman, C.A. *In review*. Changes in motile benthic community structure following oyster reef restoration in a subtropical estuary. *Food Webs*.
- Langerhans, R.B., Lansing, T.R., Stemp, K.M., Riesch, R., Araújo, M.S., and Layman, C.A. *In review*.

Consuming costly prey: optimal foraging and the role of compensatory growth. *Frontiers in Ecology and Evolution*.

Maurer, A.S., Seminoff, J.A., Layman, C.A., Stapleton, S.P., Godfrey, M.H., and Burford Reiskind, M.O. Population viability of sea turtles in the context of global warming. *Bioscience*.

Rossi, R.E., Layman, C.A., Saville, A., and Ristaino, J.B. *In review*. Identification of *Pestalotiopsis* sp. infecting red mangrove (*Rhizophora mangle*) in The Bahamas.

Stoner, E.W. and Layman, C.A. *In review*. Does nutrient loading affect growth of a benthic jellyfish species? *Caribbean Naturalist*.

TEACHING

2015-18	<i>Instructor</i> – Introduction to Biological Research (AEC 502), North Carolina State University
2014-18	<i>Instructor</i> – Applied Ecology (AEC 400), North Carolina State University
2014	<i>Instructor</i> – Food Web Ecology (AEC 592), North Carolina State University
2007-13	<i>Instructor</i> - Coastal Marine Conservation (BSC 4934/6926), Florida International University
2009-12	<i>Instructor</i> - Ecology (PCB 3043 and PCB3043L), Florida International University
2009-11	<i>Instructor</i> – Introduction to Stable Isotopes in Food Web Ecology (Seminar, BSC 6926), Florida International University
2007-8	<i>Instructor</i> - Introduction to Marine Biology (OCB2003 and OCB2003L), Florida International University
2007	<i>Instructor</i> – Otoliths and Fish Age Estimation (Seminar, BSC 6926), Florida International University
2003-2005	<i>Assistant Instructor</i> - Bahamas Field Course in Stream Restoration (BSC 467/567), Joint between students of the College of the Bahamas and University of Alabama.
2004	<i>Instructor</i> - “Indices de Integridad Biótica” (Indexes of Biotic Integrity), M.S. Seminar at Universidad Experimental de Los Llanos, Venezuela. Course taught in Spanish.
2003	<i>Instructor</i> - “Ideas Nuevas en Ecología” (New Ideas in Ecology), M.S. Seminar at Universidad Experimental de Los Llanos, Venezuela. Course taught in Spanish.
2002	<i>Instructor</i> - Current Philosophical Issues in Science Seminar (WFSC 681), Texas A&M University. Created and taught course.
2000	<i>Teaching Assistant</i> - Evolutionary Ecology (WFSC 610), Texas A & M University. Created and taught lab component of course.
1997, 1998	<i>Teaching Assistant</i> - Biology of Fishes Laboratory (BIOL 330), University of Virginia.

- 1996-1998 *Teaching Assistant - Introduction to Ecology Laboratory (EVSC 320), University of Virginia; Head Teaching Assistant 1998.*
- 1998 *Teaching Assistant - Coastal Ecology for High School Teachers, University of Virginia*

STUDENTS GRADUATED

Enie Buhler, Ph.D. 2019; Alex Bogdanoff, Ph.D., 2019; Ryann Rossi, Ph.D. 2018; Sean Giery, Ph.D. 2016; Stephanie Archer Ph.D. 2015; Elizabeth Stoner, Ph.D. 2014; Zachary Jud Ph.D. 2014; Lauren Yeager, Ph.D. 2013; Jake Allgeier, Ph.D. 2013 (co-advised with Amy Rosemond, University of Georgia); Caroline Peyer, Ph.D. 2011; Vanessa Haley, M.S. 2009; Megan Seese, M.S., 2009 (co-advised with Jennifer Rehage, NOVA Southeastern University); Lori Valentine-Rose M.S., 2008 (co-advised with Amy Ward, University of Alabama).

REVIEWER SERVICE (2010-2020)

American Naturalist, Animal Behaviour, ANR Blanc Programme (France), Aquatic Living Resources, Austral Ecology, Axios, Behavioral Ecology, Belgium Fund for Scientific Research, Biological Conservation, Biological Invasions, Biological Journal of the Linnean Society, Biological Invasions, Biological Reviews, Biological Conservation, BMC Ecology, Bonefish and Tarpon Trust, Canadian Journal of Fisheries and Aquatic Sciences, Caribbean Journal of Science, Caribbean Naturalist, Conservation Biology, Current Biology, Conservation Letters, Deep Sea Research, Diversity and Distributions, Ecohydrology, Ecology, Ecology and Evolution, Ecological Applications, Ecology Letters, Ecosphere, Ecosystems, Environmental Biology of Fishes, Estuaries and Coasts, Environmental Management, Estuarine, Coastal and Shelf Science, Fisheries Management and Ecology, Fisheries, Fisheries Research, Frontiers in Zoology, Functional Ecology, Fundamental and Applied Limnology, Global Change Biology, Gulf Research Foundation, Hydrobiologia, International Ph.D. reviews (5 different countries), Israel National Science Foundation, Journal of Animal Ecology, Journal of Basic and Applied Ecology, Journal of Ecology, Journal of Fish Biology, Journal of the North American Benthological Society, Journal of Sea Research, Journal of Tropical Ecology, Limnology and Oceanography, Limnology and Oceanography: Methods, Marine and Coastal Fisheries, MARFIN, Marine and Freshwater Research, Marine Biology, Marine Biology Research, Marine Ecology Progress Series, Marine Environmental Research, Methods in Ecology and Evolution, National Geographic, National Science Foundation (5 different programs, also including a BIO-OCE Panel 2010 and 2014 and Coastal SEES Panel 2013 and 2015), Natural Sciences and Engineering Research Council of Canada, National Environmental Research Center of the UK Nature Communications, Neotropical Ichthyology, Netherlands Foundation for Scientific Research, NOAA, Oecologia (Editorial Board 2011-2017), Oikos, PLoS One (Editor 2007-2011), Polar Biology, Proceedings of the Royal Society B, Rapid Communications in Mass Spectrometry, Qatar Science Foundation, Research Letters in Ecology, River Research and Applications, Royal Society of Open Science, Sea Grant (5 different state programs), Science of the Total Environment, Scientific Reports, Southeastern Naturalist (Guest Editor), Tenure and promotion packets (5 different universities), The Biology of Mangrove and Seagrasses (Book Review), The Open Marine Biology Journal, The Science of the Total Environment, Transactions of the American Fisheries Society, Trends in Ecology and Evolution, United Arab Emirates Research Affairs Council.