

Donovan P. German

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APPOINTMENTS

July 2017 – Present	Associate Professor, Ecology and Evolutionary Biology, UC Irvine
July 2011 – June 2017	Assistant Professor, Ecology and Evolutionary Biology, UC Irvine
July 2010 – June 2011	UC President’s Postdoctoral Fellow, Ecol Evol Biol, UC Irvine
January 2009 – June 2010	Postdoctoral Scholar, Ecol Evol Biol, UC Irvine

EDUCATION

2008	Doctor of Philosophy—Zoology Dissertation advisor: David H. Evans	University of Florida Dissertation: Digestive physiology of wood-eating catfish
2003	Master of Science—Biology Thesis advisor: Michael H. Horn	California State University, Fullerton Thesis: Digestive specialization in prickleback fishes
1999	Bachelor of Arts—Marine Science Research advisor: Michel Boudrias Research advisor: Anne Sturz	University of San Diego Project: Vernal pool community dynamics Project: Geochemistry of geothermal mud pots

RESEARCH INTERESTS

- Resource acquisition and the biochemistry of digestion (Nutritional physiology)
- Integrative and comparative physiology
- Biogeochemistry
- Global change
- Invasive species: their adaptations and effects on biogeochemistry

PUBLICATIONS

- 38) Leigh, S.C.[†], Y.P. Papastamatiou, **D.P. German**. (2018) Seagrass digestion by a notorious “carnivore”. *Proceedings of the Royal Society B* 285: 20181583
- 37) Santos, A.^a, A.R. Frederick^{a†}, B.A. Higgins, A. Carrillo, A. Carter, K.M. Dickson, **D.P. German**, and M.H. Horn. (2018) Egg cannibalism in fishes: the beach-spawning grunion (*Leuresthes tenuis*) eats and digests its own eggs. *Journal of Fish Biology* 93: 282-289
- ^a These authors contributed equally to this work

- 36) Leigh, S.C.[†], B.Q. Nguyen-Phuc*, and **D.P. German**. (2018) The effects of protein and fiber content on digestive tract structure and function in zebrafish (*Danio rerio*). *Journal of Comparative Physiology B* 188: 237-253
- 35) Leigh, S.C.[†], Y.P. Papastamatiou, and **D.P. German**. (2017) The Nutritional physiology of sharks. *Reviews in Fish Biology and Fisheries* 27: 561-585
- 34) **German, D.P.**, D. Raven, N.M. Aguilar-Roca. (2017) Floating fishes: an activity investigating overfishing, buoyancy, and gas compressibility. *American Biology Teacher* 79: 49-54
- 33) Clements, K.D., **D.P. German**, J. Piché, A. Tribollet, and J.H. Choat. (2017) Integrating ecological roles and trophic diversification on coral reefs: multiple lines of evidence identify parrotfishes as microphages. *Biological Journal of the Linnean Society* 120: 729-751
- 32) Connor, K.[§], A. Sung*, N.S. Garcia, A. Gracey, and **D.P. German**. (2016) Modulation of digestive physiology and biochemistry in *Mytilus californianus* in response to feeding level acclimation and intertidal microhabitat. *Biology Open* 5: 1200-1210
- 31) **German, D.P.**^a, D.M. Foti^{a§}, J. Heras[§], H. Amerkhanian*, and B.L. Lockwood. (2016) Elevated gene copy number does not always explain elevated amylase activities in fishes. *Physiological and Biochemical Zoology* 89: 277-293
^a these authors contributed equally to this work
- 30) Jhaveri, P.*[§], Y. Papastamatiou, and **D.P. German**. (2015) Digestive enzyme activities in the guts of bonnethead sharks (*Sphyrna tiburo*) provide insight into their digestive strategy and evidence of microbial digestion in their hindguts. *Comparative Biochemistry and Physiology A* 189: 76-83
- 29) **German, D.P.**, and S.D. Allison (2015) Drying and substrate concentrations interact to inhibit decomposition of carbon substrates added to combusted Inceptisols from a boreal forest. *Biology and Fertility of Soils* 51: 525-533.
- 28) **German, D.P.**, A Sung*, P.K. Jhaveri*, and R. Agnihotri*. (2015) More than one way to be an herbivore: convergent evolution of herbivory using different digestive strategies in prickleback fishes (family Stichaeidae). *Zoology* 118: 161-170
- 27) Sullam, K.E., C.M. Dalton, J.A. Russell, S.S. Kilham, R. El-Sabaawi, **D.P. German**, and A.S. Flecker. (2015) Changes in digestive traits and body nutritional composition accommodate a trophic niche shift in Trinidadian guppies. *Oecologia* 177: 245-257.
- 26) Allison, S.D., S.S. Chacon, and **D.P. German** (2014) Substrate concentration constraints on microbial decomposition. *Soil Biology and Biochemistry* 79: 43-49
- 25) **German, D.P.**, A.K. Gawlicka, and M.H. Horn. (2014) Evolution of ontogenetic dietary shifts and associated gut features in prickleback fishes (Teleostei: Stichaeidae). *Comparative Biochemistry and Physiology B* 168: 12-18
- 24) Kim, K.H., M.H. Horn, A.E. Sosa*, and **D.P. German**. (2014) Sequence of an α -amylase gene in four related species of prickleback fishes (Teleostei: Stichaeidae): ontogenetic, dietary, and species level effects. *Journal of Comparative Physiology B* 184: 221-234

- 23) Bach, C.E.*, D.D. Warnock, D.J. Van Horn, M.N. Weintraub, R.L. Sinsabaugh, S.D. Allison, and **D.P. German**. (2013) Measuring phenol oxidase and peroxidase activities with pyrogallol, L-DOPA, and ABTS: effect of assay conditions and soil type. *Soil Biology and Biochemistry* 67: 183-191
- 22) Alster, C.J.*, **D.P., German**, Y. Lu, and S.D. Allison (2013) Microbial enzymatic response to drought and to nitrogen addition in a southern California grassland. *Soil Biology and Biochemistry* 64: 68-79
- 21) **German, D.P.**, M.N. Weintraub, A.S. Grandy, Z.L. Rinkes, C.L. Lauber, and S.D. Allison. (2012) Response to Steen and Ziervogel's comment on "Optimization of hydrolytic and oxidative enzyme methods for ecosystem studies". *Soil Biology and Biochemistry* 48: 198-199
- 20) **German, D.P.**, K.R.B. Marcelo*, M.M. Stone*, and S.D. Allison. (2012) The Michaelis-Menten kinetics of soil extracellular enzymes in response to temperature: a cross-latitudinal study. *Global Change Biology* 18: 1468-1479
- 19) Stone, M.M.*, M.S. Weiss, C.L. Goodale, M.B. Adams, I.J. Fernandez, **D.P. German**, and S.D. Allison. (2012) Temperature sensitivity of soil enzyme kinetics under N-fertilization in two temperate forests. *Global Change Biology* 18: 1173-1184
- 18) Lujan, N.K., **D.P. German**, and K.O. Winemiller. (2011) Do wood grazing fishes partition their niche? Morphological and isotopic evidence for trophic segregation in Neotropical Loricariidae. *Functional Ecology* 25: 1327-1338
- 17) **German, D.P.**, S.S. Chacon*, and S.D. Allison. (2011) Substrate concentration and enzyme allocation can affect rates of microbial decomposition. *Ecology* 92: 1471-1480
- 16) **German, D.P.**, M.N. Weintraub, A.S. Grandy, Z.L. Rinkes, C.L. Lauber, and S.D. Allison. (2011) Optimization of hydrolytic and oxidative enzyme methods for ecosystem studies. *Soil Biology and Biochemistry* 43: 1387-1397
- 15) Day, R.D., **D.P. German**, J.M. Manjakasy, I. Farr, J. Hansen, and I.R. Tibbetts. (2011) Enzymatic digestion in stomachless fishes: how a simple gut accommodates both herbivory and carnivory. *Journal of Comparative Physiology B* 181: 603-613
- 14) **German, D.P.** (2011) Digestive efficiency. In: *Encyclopedia of Fish Physiology, From Genome to Environment*, Farrell A.P. (Ed). Volume 3, Pp. 1596-1607. Academic Press, San Diego, CA
- 13) Day, R.D., **D.P. German**, and I.R. Tibbetts (2011) Why can't young fish eat plants? Neither digestive enzymes nor gut development preclude herbivory in the young of a stomachless marine herbivorous fish. *Comparative Biochemistry and Physiology B* 158: 23-29
- 12) **German, D.P.**, and R.D. Miles (2010) Stable carbon and nitrogen incorporation in blood and fin tissue of the catfish *Pterygoplichthys disjunctivus* (Siluriformes, Loricariidae). *Environmental Biology of Fishes* 89: 117-133
- 11) **German, D.P.**, D.T. Neuberger*, M.N. Callahan*, N.R. Lizardo*, and D.H. Evans (2010) Feast to famine: the effects of food quality and quantity on the gut structure and function of a detritivorous catfish (Teleostei: Loricariidae). *Comparative Biochemistry and Physiology A* 155: 281-293

- 10) **German, D.P.**, B.C. Nagle, J.M. Villeda*, A.M. Ruiz*, A.W. Thomson, S. Contreras-Balderas, and D.H. Evans (2010) Evolution of herbivory in a carnivorous clade of minnows (Teleostei: Cyprinidae): effects on gut size and digestive physiology. *Physiological and Biochemical Zoology* 83: 1-18
- 9) **German, D.P.** (2009) Inside the guts of wood-eating catfishes: can they digest wood? *Journal of Comparative Physiology B* 179: 1011-1023
- 8) **German, D.P.**, and R.A. Bittong* (2009) Digestive enzyme activities and gastrointestinal fermentation in wood-eating catfishes. *Journal of Comparative Physiology B* 179: 1025-1042
- 7) **German, D.P.** (2009) Do herbivorous minnows have "plug-flow reactor" guts? Evidence from digestive enzyme activities, gastrointestinal fermentation, and luminal nutrient concentrations. *Journal of Comparative Physiology B* 179: 759-771
- 6) Gao, F., H. Yang, Q. Xu, F. Wang, G. Liu, and **D.P. German** (2008) Phenotypic plasticity of gut structure and function during periods of inactivity in *Apostichopus japonicus* (Selenka). *Comparative Biochemistry and Physiology B* 150:255-262
- 5) **German, D.P.** and M.H. Horn (2006). Gut length and mass in herbivorous and carnivorous prickleback fishes (Teleostei: Stichaeidae): ontogenetic, dietary, and phylogenetic effects. *Marine Biology* 148: 1123-1134
- 4) Horn, M.H., A. Gawlicka, **D.P. German**, E.A. Logothetis, J.W. Cavanagh and K.S. Boyle (2006). Structure and function of the stomachless digestive system in three related species of New World silverside fishes (Atherinopsidae) representing herbivory, omnivory, and carnivory. *Marine Biology* 149: 1237-1245
- 3) Pryor, G.S., **D.P. German**, and K.A. Bjorndal (2006). Gastrointestinal fermentation in Greater Sirens (*Siren lacertina*). *Journal of Herpetology* 41: 112-117
- 2) **German, D.P.**, M.H. Horn and A. Gawlicka (2004). Digestive enzyme activities in herbivorous and carnivorous prickleback fishes (Teleostei: Stichaeidae): ontogenetic, dietary, and phylogenetic effects. *Physiological and Biochemical Zoology* 77: 789-804
- 1) Sturz, A., **D.P. German** and D. Putnam (1998). Salton Sea Geothermal Area Mud Pots: 1991-1998. In: *Geology and Geothermal Resources of the Imperial and Mexicali Valleys*, L. Lindsey and W. Hample (eds). San Diego Association of Geologists publication 98-1, Pg. 109-128.

§Denotes postdoctoral researcher; †graduate student; * undergraduate research assistant

MANUSCRIPTS SUBMITTED OR IN PREPARATION

- Wehrle, B.W. †, A. Herrel, B-Q Nguyen-Phuc*, S. Maldonado Jr.*, R.K. Dang*, R. Agnihotri*, Z. Tadić, **D.P. German**. Rapid evolution of omnivory in *Podarcis sicula* led to localized changes in gut structure and function. *Journal of Comparative Physiology B* (In revision)
- Crummett, L.T., D.M.C. Ongaro, **D.P. German**. Sucrose consumption is excluded as a cause, risk factor, or prevention for type 2 diabetes in most diabetes websites. *PLoS* (Under Review)

- Frederick, A.R.[†], D.J. Eernisse, **D.P. German**. Defining species relationships and disease resistance patterns in northeastern Pacific abalone. *American Malacological Bulletin* (Under Review)
- Heras, J.[§], M. Chakraborty, J.J. Emerson, **D.P. German**. The physiological genomics of dietary adaptation in a marine herbivorous fish (Submitted) doi: <https://doi.org/10.1101/457705>
- Vigliotti, C., V. Lemieux-Labonté, S. Dowd, Z. Tadić, B.A. Wehrle[†], **D.P. German**, A. Herrel, F.-J. Lapointe, P. Lopez, E. Baptese. Targeted changes in the gut microbiota of natural populations of lizards undergoing a dietary shift. In prep- to be submitted
- Herrera, M.J.[†], J. Heras[§], **D.P. German**. Comparative transcriptomics reveal tissue level specialization towards diet in prickleback fishes. In prep- to be submitted to *Journal of Experimental Biology*
- Nguyen-Phuc, B.Q*., J.D. Bastian-Salgado*, E. Hawkins*, S. Stewart, C. Demetropolous, **D.P. German**. The Nutritional Physiology of Santa Ana sucker, *Catostomus santaanae*. In prep- to be submitted to *Comparative Biochemistry and Physiology B*
- **German, D.P.**, and J. Heras[§]. Vertebrate α -amylase genetics and biochemistry: a review. In prep- to be submitted to *Journal of Comparative Physiology B*
- **German, D.P.**, N.K. Lujan, and C.R. Jackson. Enteric microbial diversity in four wood-eating catfish species from the Amazonian basin. In prep- to be submitted to *Molecular Ecology*

TEACHING EXPERIENCE

- Assistant Professor, School of Biological Sciences, University of California, Irvine. Marine Biology (E120). Responsible for curriculum and lectures (2014).
- Assistant/Associate Professor, School of Biological Sciences, University of California, Irvine. Human Nutrition (E136). Responsible for curriculum and lectures (2013-2018).
- Assistant Professor, School of Biological Sciences, University of California, Irvine. Comparative Physiology (E208). Responsible for curriculum and lectures (2012, 2016).
- Assistant/Associate Professor, School of Biological Sciences, University of California, Irvine. Human Physiology (E109) Lecture. Responsible for curriculum, lectures, and exams (2012-2018).
- Associate Faculty, University of Phoenix, Southern CA Campus. Introductory Biology (2010).
- Graduate Teaching Assistant, Department of Zoology, University of Florida. Functional Vertebrate Anatomy Laboratory. Responsible for leading lectures and laboratory examination of the evolution of different anatomical structures of vertebrates (2007).
- Graduate Teaching Assistant, Department of Zoology, University of Florida. Special Topics Course: Nutritional Physiology of Anoles. Led graduate level course to teach techniques of nutritional physiology using anoles as a model (2007).
- Graduate Teaching Assistant, Department of Zoology, University of Florida. Integrative Principles of Zoology. Course required of all first year graduate students in the department. Taught module on nutritional physiology and grant writing and aided other professors with their modules of varying topics (2006-2007).
- Graduate fellow in NSF GK-12 program, Science Partners in Inquiry-Based Collaborative Education (SPICE): Responsible for leading inquiry-based lectures and laboratory activities with an ecosystem health focus in a middle school classroom in an effort to raise

scientific awareness and scientific literacy (2004-2006).

- Private tutoring. Wide range of biological topics including: biochemistry, physiology, ecology, microbiology, marine biology, molecular biology, cellular biology, and genetics (2001-2008).
- Graduate Teaching Assistant, Department of Biological Science, CSU Fullerton. Principles of Ecology Laboratory. Responsible for laboratory lecture, preparations, functions, field trips, quizzes, practicums, and grades (1999)
- Instructor at Marine Science Summer Camp for youth, “Aquatic Adventures”, in San Diego, CA. Duties included teaching youth about marine and intertidal flora and fauna, wetland ecology, and biological sampling techniques (1998)

GRANTS

- UC Irvine Biological Sciences Faculty Research and Travel Grant (February 2018): \$2500
- NSF Integrative Organismal Systems (IOS-1355224, PI: D.P. German, Sept 2014): \$543,124
- UC MEXUS Program (PI: D.P. German, M. Mendoza-Carranza, September 2014): \$25,000
- NSF Catalyzing New International Collaborations (IIA, PI: D.P. German, August 2013): \$46,902
- Codon Code Alignment Software, Free License Grant (April 2012): \$700 (license)
- Kimble-Chase New Lab Start-Up Grant (September 2011): \$1000 (free glassware)
- UC President’s Postdoctoral Fellowship Research Funds (July 2010): \$4000
- University of Florida Mentoring Opportunity Program grant (May 2008): \$300
- American Society of Ichthyologists and Herpetologists Raney Award (May 2007): \$1000
- University of Florida, University Scholars Program (March 2007): \$2500
Mentored student: Daniel Neuberger; Faculty Mentor: Dr. David H. Evans
- University of Florida, University Scholars Program (March 2007): \$2500
Mentored student: Rosalie Bittong; Faculty Mentor: Dr. Richard D. Miles
- University of Florida, University Scholars Program (March 2006): \$2500
Mentored student: Meaghan Callahan; Faculty Mentor: Dr. David H. Evans
- SPICE Research Stipend (September 2005): \$1000
- American Museum of Natural History Theodore Roosevelt Memorial Fund (May 2005): \$2000
- American Society of Ichthyologists and Herpetologists Raney Award (May 2005): \$1000
- SPICE Research Stipend (September 2004): \$1000
- Brian Rewald Memorial Scholarship (May 2005): \$300
- University of Florida Mentoring Opportunity Program grant (Feb 2004): \$300
- Brian Rewald Memorial Scholarship (May 2004): \$300
- University of Florida, Department of Zoology Student Research Award (April 2004): \$1100.00
- CSUF Department of Biological Science Funds (2000-2002): \$600
- Sigma Xi Grants in Aid of Research (Fall 2001): \$350
- CSUF Departmental Associations Council Research Grant (Fall 2000): \$450
- USD Associated Students Undergraduate Research Grant (Spring 1998): \$400

SCHOLARSHIPS, AWARDS, AND FELLOWSHIPS

- UC Irvine School of Biological Sciences Chancellor’s Award for Excellence in Fostering Undergraduate Research (May 2017)
- UC Irvine School of Biological Sciences Dean’s Award for Postdoctoral Excellence (Dec 2010)
- UC President’s Postdoctoral Fellowship Program Recipient (March 2010)
- UC President’s Postdoctoral Fellowship Program Finalist (March 2009)
- ASIH Travel Award (July 2008)

- ASIH Stoye Award—best physiology presentation (July 2008)
- International Congress on the Biology of Fishes Travel Award (July 2008)
- International Congress on the Biology of Fishes—2nd Place “Best Poster” competition (July 2008)
- UF Graduate Student Council Travel Award (July 2008)
- UF Department of Zoology Travel Award (April 2008)
- UF Department of Zoology Travel Award (April 2007)
- UF Graduate Student Council Travel Award (July 2007)
- UF Department of Zoology Graduate Student Teaching Award (December 2005)
- NSF GK-12 Fellowship: Science Partners in Inquiry-Based Collaborative Education (SPICE); Teaching inquiry based science to under-resourced middle school students (2004-2006)
- Comparative Nutrition Society Best Student Presentation (July 2004)
- UF CLAS Alumni Fellowship—full funding for four years (2003-2007)
- CSUF President’s Associates Outstanding Graduate Student Award (May 2003)
- CSUF Department of Biological Science Outstanding Thesis Award (May 2003)
- Southern California Academy of Sciences Best Physiology Talk (May 2003)
- CSUF Natural Sciences and Mathematics Inter-Club Council Travel Award (Fall 2002)
- CSUF Coppel Graduate Science Scholarship (Spring 2001)
- NSF REU, Scripps Inst. of Oceanography, Antarctic Biol. Oceanography Research (Fall 1999)
- USD Marine Science Undergraduate Research Award (Fall 1998)

MENTORING

- Postdoctoral Fellows: Dr. Kwasi Connor (2012-2015), Dr. Joseph Heras (2015-2018).
- Research Scientists: Dr. Dolly Foti (2011-2014)
- Completed PhD degrees: Dr. Beck A. Wehrle (2018)
- Current PhD Students: Alyssa Frederick (2014-present), Samantha Leigh (2014-present), Michelle Herrera (2017-present), Karina Brocco French (2018-present).
- Undergraduate Researchers: 65 and counting.

UNIVERSITY SERVICE

- Chair, Graduate Admissions Committee (2017-present)
- Ad-Hoc Committee Charged with establishing a UCI Senate Committee on Diversity (2018)
- Member, Graduate Admissions Committee (2011-2016)
- School of Biological Sciences Executive Committee (2011-2013)
- Personnel Committee for Faculty Merit Review (2011, 2013, 2015, 2017)

OUTREACH AND DIVERSITY ACTIVITIES

- Diverse Educational Community and Doctoral Experience (DECADE) 2017-present: Mentor for the Department of Ecology & Evolutionary Biology at UC Irvine.
- Targeted Instruction Generating Excitement about Research and Science (TIGERS) 2013-Present: Partnership between my laboratory and the biology instructors (Rebecca Bonet and Leina Rizzo) at Valencia High School, an underserved high school in Placentia, CA. Once a month, my graduate students, postdoctoral fellows, and I lead inquiry-based science lessons with the general biology classes at VHS (and of course, their mascot is the Tigers).
- Crystal Cove Alliance Citizen Science Marine Biology Cruises 2014-Present: Partnership between my laboratory and the Crystal Cove Alliance, which features middle school students

gathering oceanographic and marine biology data from Crystal Cove State Park, and the Laguna Beach Marine Protected Area. The long-term goal is to generate a large dataset that tests the efficacy of the marine protected area.

- Equitable Science Curriculum Integrating Arts in Public Education (ESCAPE) 2014-2016: Partnership between UC Irvine and the Orange County Department of Education to improve science education through the integration of art (performing and visual). I am responsible for evaluating and generating science curriculum for Earth Science and Life Science.
- NSF-Blinks-Beacon Research Experience for Undergraduates program, summer 2016: Mentored Michelle Herrera in an eight-week research program in fish nutritional physiology at University of Washington's Friday Harbor Laboratories.

SELECTED PUBLIC PRESENTATIONS

- D. P. German, M. Herrera*, J. Heras. Can you stomach it? Comparative biochemistry and transcriptomics of the stomachs of prickleback fishes consuming different diets. Society for Integrative and Comparative Biology, San Francisco, CA, January 2018
*Presenting author
- German, D.P. Trust your gut: using digestive physiology as a tool to understand animal ecology. Ecological Society of America, Portland, OR, August 2017
- German, D.P., and J. Heras. Dietary specialization on the molecular level: comparative transcriptomics of prickleback fishes (Stichaeidae) with different diets. Society for Integrative and Comparative Biology, New Orleans, LA, January 2017.
- Herrera, M.J., J. Heras, and D.P. German. Digestive specialization in prickleback fishes (Family Stichaeidae): molecular underpinnings and potential for plasticity. Society for Integrative and Comparative Biology, New Orleans, LA, January 2017. (Given by DPG)
- German, D.P., B.Q. Nguyen-Phuc, S. Stewart and C. Demetropolous. The Nutritional Physiology of Santa Ana sucker, *Catostomus santaanae*. American Fisheries Society California-Nevada Chapter Meeting, Reno, NV, March 2016.
- German, D.P. and D.M. Foti. More than one way to skin a cat: convergent evolution of herbivory following different trajectories in prickleback fishes (Stichaeidae). Evolution Meeting, Guarujá, Brazil, June 2015.
- German, D.P. Trust your gut: using digestive physiology as a tool to understand animal ecology. California's Organization of Aquatic Show Tropicals, Costa Mesa, CA, June 2015.
- German, D.P. Amylase genetics underlies a digestive specialization in prickleback fishes (family Stichaeidae). Southwest Organismal Biology meeting, Irvine, CA, September 2014.
- German, D.P. Elevated amylase activities have different genetic underpinnings in prickleback fishes (family Stichaeidae) with different diets. Society for Integrative and Comparative Biology meeting, Austin, TX, January 2014.
- German, D.P. Digestive enzyme activities elucidate the digestive strategies of prickleback fishes (Stichaeidae) with different diets. Society for Integrative and Comparative Biology meeting, San Francisco, CA, January 2013.

- German, D.P. and S.D. Allison. The potential interaction of organic matter concentration and moisture level in decomposition. Ecological Society of America meeting, Austin, TX August 2011.
- German, D.P. Soil organic matter concentration can act as a constraint on microbial decomposition. UC President's Postdoctoral Fellowship Retreat, Arrowhead, CA October 2010
- German, D.P. Beavers of the fish world: can wood-eating catfishes actually digest wood? Comparative Nutrition Society meeting, Liscomb Mills, Nova Scotia, Canada, August 2008.
- German, D.P. Beavers of the fish world: can wood-eating catfishes actually digest wood? International Congress on the Biology of Fishes, Portland, OR, July 2008.
- German, D.P. Digestive enzyme activities in wood-eating catfishes: sources and consequences. American Society of Ichthyologists and Herpetologists meeting, Montreal, Quebec, Canada, July 2008.
- German, D.P. and D.H. Evans. I'll show you my gut if you show me yours! Evolution of herbivory in a carnivorous clade of minnows. Evolution meetings, Christchurch, New Zealand, June 2007.
- German, D.P. and D.H. Evans. What does it take to be a herbivore for a fish? Gut structure and function in sister clades of herbivorous and carnivorous minnows. South Eastern Ecology and Evolution Conference, Orlando, FL, March 2007.

INVITED SEMINARS

- Fish Digestive Systems. Disney's Animal Kingdom: Workshop for *Ex Situ* Marine Teleost Nutrition and Health. Orlando, FL, February 2018.
- Trust your gut: using digestive physiology as a tool to understand animal ecology. University of North Texas, Department of Biological Sciences, November 2017
- Trust your gut: using digestive physiology as a tool to understand animal ecology. California State University, Long Beach, Department of Biological Sciences, April 2017
- Trust your gut: using digestive physiology as a tool to understand animal ecology. University of Georgia, Odum School of Ecology, March 2017.
- Elevated gene copy number does not always explain elevated amylase activities in fishes. University of Washington, Friday Harbor Laboratories, July 2016.
- Resource acquisition in microbes and animals: consequences and mechanisms. University of Southern California, Department of Marine and Environmental Sciences, January 2016.
- Trust your gut: using digestive physiology as a tool to understand animal ecology. University of California, Irvine, ESCAPE Summer Workshop Keynote Address, August 2015.

- My journey into ecological physiology. University of California, Irvine, Minority Science Program seminar, February 2015.
- Moving beyond diet: the importance of nutritional physiology in fish conservation. Towards a Sustainable 21st Century Conference: Ocean health, global fishing, and food security. Beckman Center of the National Academy of Sciences and Engineering, Irvine, CA November 2014.
- Digestive specialization: from genes to animal performance. University of California, Irvine, Department of Ecology and Evolutionary Biology Invited Seminar, October 2014.
- Amylase genetics and biochemistry underlie a digestive specialization in prickleback fishes (family Stichaeidae). American Physiological Society Meeting, San Diego, CA, October 2014.
- Trust your gut: using digestive physiology as a tool to understand animal ecology. University of California, Riverside, Department of Biology, Invited Seminar, May 2014.
- Trust your gut: using digestive physiology as a tool to understand animal ecology. Cornell University, Department of Ecology and Evolutionary Biology, Invited Seminar, March 2014.
- Trust your gut: using digestive physiology as a tool to understand animal ecology. California Polytechnic State University San Luis Obispo, Department of Biology Invited Seminar, November 2013.
- Trust your gut: using digestive physiology as a tool to understand animal ecology. University of Alabama, Department of Biology Invited Seminar, September 2013.
- Energy acquisition in detritivorous fishes and microbial decomposers: eatin', poopin', and external rumens. California State Polytechnic University, Pomona, Department of Biology Invited Seminar, May 2013.
- Energy acquisition in detritivorous fishes and microbial decomposers: eatin', poopin', and external rumens. Loyola Marymount University, Department of Biology Invited Seminar, April 2013.
- My journey into ecological physiology. University of California, Irvine, Minority Science Program seminar, September 2012.
- Vertebrate nutritional physiology: an integrative approach. University of California, Irvine, Department of Ecology and Evolutionary Biology Invited Seminar, January 2011.
- Energy acquisition in detritivorous fishes and microbial decomposers: eatin', poopin', and external rumens. California State University Northridge, Department of Biology Invited Seminar, November 2010.
- Beavers of the fish world: can wood-eating catfishes actually digest wood? California State University Fullerton, Department of Biological Sciences Invited Seminar, September 2009.
- Beavers of the fish world: can wood-eating catfishes actually digest wood? University of San Diego, Department of Biology Invited Seminar, March 2009.

- Beavers of the fish world: can wood-eating catfishes actually digest wood? University of Florida, Department of Zoology Exit Seminar, December 2008.
- Beavers of the fish world: can wood-eating catfishes actually digest wood? University of California, Irvine, Department of Ecology and Evolutionary Biology Invited Seminar, April 2008.
- Evaluating the “plug-flow reactor” model of digestive physiology: do all herbivores rely on microbial fermentation? University of Florida, Department of Zoology Invited Seminar, September 2007.
- Digestive physiology of herbivorous and carnivorous fishes. University of San Diego, Department of Marine and Environmental Sciences Invited Seminar, November 2002.

SELECTED POSTER PRESENTATIONS

- **German, D.P.**, F. Chaabani*, D. Gevorgyan*, A. Sung*, and C. Fawcett*. A test of the “Temperature Constraint Hypothesis”: little variation in the digestive biochemistry of prickleback fishes (family Stichaeidae) from California and Washington. Society of Integrative and Comparative Biology meeting, West Palm Beach, FL, January 2015.
- **German, D.P.**, A. Sung*, P. Jhaveri*, and R. Agnihotri*. Digestive physiology varies among prickleback fishes (family Stichaeidae) with different diets and evolutionary histories. Society of Integrative and Comparative Biology meeting, Austin, TX, January 2014.
- Sosa, A.E.*, and **D.P. German**. Evolution of herbivory in the family Stichaeidae (Teleostei). Society of Integrative and Comparative Biology meeting, San Francisco, CA, January 2013.
- Marcelo, K.R.B.*, **D.P. German**, M.S. Stone*, and S.D. Allison. The effects of temperature on the dynamics of soil organic matter decomposition. UCI University Research Opportunity Program Symposium, Irvine, CA, May 2010.
- **German, D.P.**, and D.H. Evans. Plasticity of gastrointestinal tract structure and function in the invasive fish *Pterygoplichthys disjunctivus* (Teleostei: Loricariidae). Experimental Biology Annual Meeting, Anaheim, CA, April 2010.
- Chacon, S.S.*, **D.P. German**, and S.D. Allison. Soil organic matter concentration as a constraint on microbial decomposition. American Association for the Advancement of Science Annual Meeting, San Diego, CA, February 2010.
- **German, D.P.**, B.C. Nagle, and D.H. Evans. Evolution of herbivory in a carnivorous clade of minnows (Teleostei: Cyprinidae): effects on gut structure and function. International Congress on the Biology of Fishes, Portland, OR, July 2008.
- Neuberger, D.T.*, **D.P. German**, and D.H. Evans. Gut surface area in the detritivorous catfish *Pterygoplichthys disjunctivus*. University of Florida, University Scholars Research Symposium, March 2008.
- Bittong, R.A.*, **D.P. German**, D.H. Evans, and R.D. Miles. Digestive enzyme activities in the wood-eating catfish *Panaque nocturnus*. University of Florida, University Scholars Research Symposium, March 2008.

- Lizardo, N.L.*, and **D.P. German**. How can a fish starve for six months and live? University of Florida, University Scholars Research Symposium, March 2008.
- Callahan, M.N.*, **D.P. German**, and D.H. Evans. Digestive enzyme activities in the invasive armored catfish *Pterygoplichthys disjunctivus*: sources and consequences. University of Florida, Department of Zoology, Undergraduate Research Symposium, April 2007.

* Denotes undergraduate research assistant

MEDIA COVERAGE

- *First known omnivorous shark species identified*. The Guardian. September 2018.**
https://www.theguardian.com/environment/2018/sep/05/bonnethead-omnivorous-shark-species-identified?CMP=share_btn_tw
- *The omnivorous sharks that eat grass*. New York Times. September 2018.**
<https://www.nytimes.com/2018/09/06/science/omnivorous-sharks-seagrass.html>
- *Meet the world's first salad-eating shark*. Science Magazine. January 2018.
<http://www.sciencemag.org/news/2018/01/meet-world-s-first-salad-eating-shark> (spread by countless other science-based blogs, including IFL Science).
- *More than one way to be an herbivore*: Elsevier STM Digest Spotlight. August 2015.
<https://medium.com/@STMDigest/more-than-one-way-to-be-an-herbivore-a418bd2d9590>
- *New Scientist* Zoologger: The fish with no stomach for its prey. 27 January 2011.
<http://www.newscientist.com/article/dn20040-zoologger-the-fish-with-no-stomach-for-its-prey.html>
- *National Geographic* Daily News, Pictures: New armored, wood-eating catfish found in the Amazon. 21 September 2010
<http://news.nationalgeographic.com/news/2010/09/photogalleries/100921-new-species-science-armored-wood-eating-catfish-amazon-pictures/>
- *Practical Fishkeeping Magazine* News and Analysis: Do catfishes need to eat wood? Oct 2009
http://www.practicalfishkeeping.co.uk/pfk/pages/backissue.php?issue_id=113
- *Tropical Fish Hobbyist Magazine* Catfish Corner, Coming Attractions: Interesting talks at the 2008 American Society of Ichthyologists and Herpetologists meeting—Digestive enzyme activities in wood-eating catfishes: sources and consequences.
<http://www.tfhdigital.com/tfh/200809/?pg=49>
- *Explore Magazine*: Spice-ing up science. Program pairs science graduate students with middle schoolers. Sept 2005 <http://www.research.ufl.edu/publications/explore/v10n3/story2.html>

** This study was covered by numerous domestic and international news outlets.

PEER REVIEW

Physiological and Biochemical Zoology
Marine Ecology Progress Series
Marine Biology
Journal of Comparative Physiology B
Journal of Herpetology
Environmental Biology of Fishes
Journal of Geophysical Research
Aquatic Conservation

Global Change Biology
Comparative Biochemistry and Physiology
Journal of Experimental Mar. Biol. and Ecol.
Helgoland Marine Research
Journal of Morphology
Marine and Freshwater Research
Fish Physiology and Biochemistry
Aquaculture Research

Soil Biology and Biochemistry
Coral Reefs
Biogeochemistry
Diversity
Acta Zoologica
Proceedings of the Royal Society B
Journal of Fish Biology
Ecological Monographs
Acta Ichthyologica
J of Animal Biol & Animal Nutrition
Molecular Ecology
Journal of Zoology

Frontiers in Aquatic Physiology
Environmental Microbiology
Rapid Communications in Mass Spectrometry
Journal of Experimental Zoology A
Functional Ecology
PLoS One
Hydrobiologia
American Biology Teacher
Evolution
Marine Biodiversity Records
Freshwater Biology
BMC Evolution

EDITORIAL RESPONSIBILITIES

Oecologia— Handling Editor, Aquatic Ecology Section (2017-present)
Integrative and Comparative Biology—Division of Comparative Physiology and Biochemistry Editor (2016-present)
Comparative Biochemistry and Physiology B—International Editor (2015-present)
Frontiers in Aquatic Physiology—Review Editor (2012-present)

GRANT PROPOSAL REVIEW

UC-HBCU Grant proposal onsite review panel (June 2015)
UC President's Postdoctoral Fellowship Program off-site reviewer (January 2012-2018)
UC-MEXUS on-site proposal review panel (November 2012)
NSF, Integrative Organismal Systems Ad Hoc reviewer (September 2012)
Fundação para a Ciência e Tecnologia, Portugal, Ad Hoc reviewer (September 2012)

SOCIETY MEMBERSHIPS

Comparative Nutrition Society, Society for Integrative and Comparative Biology, American Physiological Society, Sigma Xi