

Reid S. Brennan

Marine Evolutionary Ecology
GEOMAR Helmholtz Centre for Ocean Research Kiel
Düsternbrooker Weg 20
24105 Kiel, Germany

Email: rbrennan@geomar.de
Phone: +49 431-600-4557
Website: reidsbrennan.weebly.com

Education and professional experience

2021-Present	Junior Professor GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany Position equivalent to assistant professor in USA
2017-2021	Postdoctoral Associate University of Vermont, USA; Advisor: Dr. Melissa Pespeni
2017	Ph.D., Ecology University of California Davis, USA; Advisor: Dr. Andrew Whitehead
2009	B.S, Biology University of Dayton, USA

Grants

2022-2025	Deutsche Forschungsgemeinschaft (German Research Foundation) Principal Investigator: Validation of predictions of evolutionary rescue from global change (€231,440)
2022	Society for Molecular Biology and Evolution Satellite Meeting on Evolutionary Rescue (€30,000)
2020	Dovetail Genomics Tree of Life Grant (\$15,000)
2016	National Science Foundation Doctoral Dissertation Improvement Grant (\$18,040)
2013-2016	Henry A. Jastro Research Fellowship, UC Davis Graduate Group in Ecology (\$6,970)
2014	Daphne and Ted Pengelley Award in Evolutionary Biology, UC Davis Center for Population Biology (\$1,500)
2013	George Maier Foundation Grant (\$1,000)

Awards and fellowships

2017	Michael Guyer Postdoctoral Fellowship, University of Wisconsin-Madison Declined to accept postdoc at UVM
2017	AAAS Science Policy Workshop, Washington, DC. UC Davis selected representative.
2015	UC Davis Graduate Group in Ecology Fellowship (Tuition and salary, 1 quarter)
2014	UC Davis Graduate Group in Ecology Fellowship (Tuition and salary, 1 quarter)
2010	Economic Development Assistantship, Louisiana State University (\$100,000)
2009	John J. Comer Ecological Undergraduate Research Award, University of Dayton

Publications

Preprints/In review:

deMayo, J.A., Finiguerra, M., Norton, L.; Park, G., **Brennan, R.S.**, Pespini, M.H., Baumann, H., Dam, H., Limited copepod adaptation to combined warming and acidification reveals cost of producing adaptive phenotypes. In review.

Peer-reviewed:

17. Petak, C., Frati, L., **Brennan, R.S.**, Pespeni, M.H., Whole genome sequencing reveals regulatory and low pleiotropy variants underlie local adaptation to environmental variability in purple sea urchins. *The American Naturalist*. In press.
16. Dickey, J., Jeschke, J.M., Steffen, G., Kazanavičiūtė, E., **Brennan, R.S.**, Briski, E., Current temperatures limit the potential impact of a commonly traded predatory gastropod. *Aquatic Invasions*. In press
15. **Brennan, R.S.** and Whitehead, A., 2023 Evidence of prezygotic isolation, but not assortative mating, between locally adapted populations of *Fundulus heteroclitus* across a salinity gradient. *Journal of Evolutionary Biology*. 36(4), 687-697.
14. Dickey, J.W., **Brennan, R.S.**, Chung, S.S.W., Jeschke, J.M., Steffen, G.T. and Briski, E., 2023. More than we bargained for: Zebra mussels transported amongst European native freshwater snails. *NeoBiota*, 83, pp.1-10.
13. **Brennan, R.S.**, deMayo, J.A., Dam, H.G., Finiguerra, M., Baumann, V. Buffalo, H., Pespeni, M.H., 2022. Experimental evolution reveals the synergistic genomic mechanisms of adaptation to ocean warming and acidification in a marine copepod. *Proceedings of the National Academy of Sciences*. 119 (38). doi: 10.1073/pnas.2201521119
12. **Brennan, R.S.**, DeMayo, J.A., Dam, H.G., Finiguerra, M.B., Baumann, H. and Pespeni, M.H., 2022. Loss of transcriptional plasticity but sustained adaptive capacity after adaptation to global change conditions in a marine copepod. *Nature communications*, 13(1), pp.1-13.
11. Dam, H.G., DeMayo, J.A., Park, G., Norton, L., Xuejia, H., Finiguerra, M.B., Baumann H., **Brennan, R. S.**, Pespeni, M.H. (2021). Rapid, but limited, zooplankton adaptation to simultaneous warming and acidification. *Nature Climate Change*. 11: 780–786.
10. Garrett, A.D., **Brennan, R.S.**, Steinhart, A.L., Pelletier, A.M., Pespeni, M.H., 2020. Unique genomic and phenotypic responses to extreme and variable pH conditions in purple urchin larvae. *Integrative and Comparative Biology*. 60(2), 318-331. doi: 10.1093/icb/icaa072
9. **Brennan, R.S.**, Garrett, A.D., Huber, K.E., Hargarten, H. and Pespeni, M.H., 2019. Rare genetic variation and balanced polymorphisms are important for survival in global change conditions. *Proceedings of the Royal Society B*, 286(1904), 20190943. doi: 10.1098/rspb.2019.0943
8. Healy, T.M., **Brennan, R.S.**, Whitehead, A. and Schulte, P.M., 2019. Mitochondria, sex and variation in routine metabolic rate. *Molecular Ecology*. 28(20), 4608-4619. doi: 10.1111/mec.15244
7. McKenzie, J.L., Chung, D.J., Healy, T.M., **Brennan, R.S.**, Bryant, H.J., Whitehead, A. and Schulte, P.M., 2019. Mitochondrial ecophysiology: assessing the evolutionary forces that shape mitochondrial variation. *Integrative and Comparative Biology*. 59(4), 925-937. doi: 10.1093/icb/icz124
6. **Brennan, R.S.**, Healy, T.M., Bryant, H.J., La, M.V., Schulte, P.M., and Whitehead, A. 2018. Integrative population and physiological genomics reveals mechanisms of adaptation in killifish. *Molecular Biology and Evolution*, 35(11), 2639-2653. doi: 10.1093/molbev/msy154
5. Healy, T.M., **Brennan, R.S.**, Whitehead, A. and Schulte, P.M., 2018. Tolerance traits related to climate change resilience are independent and polygenic. *Global Change Biology*, 24(11), 5348-5360. doi: 10.1111/gcb.14386
4. **Brennan, R.S.**, Hwang, R., Tse, M., Fangue, N.A. and Whitehead, A., 2016. Local adaptation to osmotic environment in killifish, *Fundulus heteroclitus*, is supported by divergence in swimming performance but

not by differences in excess post-exercise oxygen consumption or aerobic scope. *Comparative Biochemistry and Physiology Part A: Molecular & Integrative Physiology*, 196, 11-19. doi: 10.1016/j.cbpa.2016.02.006

3. **Brennan, R.S.**, Galvez, F. and Whitehead, A., 2015. Reciprocal osmotic challenges reveal mechanisms of divergence in phenotypic plasticity in the killifish *Fundulus heteroclitus*. *The Journal of Experimental Biology*. 218(8), 1212-1222. doi: 10.1242/jeb.110445
2. Kozak, G.M., **Brennan, R.S.**, Berdan, E.L., Fuller, R.C. and Whitehead, A., 2014. Functional and population genomic divergence within and between two species of killifish adapted to different osmotic niches. *Evolution*. 68(1), 63-80. doi: 10.1111/evo.12265
1. Carstens, B.C., **Brennan, R.S.**, Chua, V., Duffie, C.V., Harvey, M.G., Koch, R.A., McMahan, C.D., Nelson, B.J., Newman, C.E., Satler, J.D. and Seeholzer, G., 2013. Model Selection as a Tool for Phylogeographic Inference: An Example From the Willow *Salix melanopsis*. *Molecular Ecology*. 22(15), 4014-4028. doi: 10.1111/mec.12347

Teaching Experience

Instructor of record:

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| 2022-present | Marine evolutionary genomics
M.Sc. Biological Oceanography, GEOMAR Helmholtz Centre for Ocean Research.
Course website: rsbrennan.github.io/EvolutionaryGenomics_2023/ |
| 2021-present | Current topics in fish ecology and evolution
M.Sc. Biological Oceanography, GEOMAR Helmholtz Centre for Ocean Research. |
| 2021-present | Practical courses in biological oceanography: Fish barcoding and sustainability
M.Sc. Biological Oceanography, GEOMAR Helmholtz Centre for Ocean Research. |

Guest lectures:

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| 2022 | Marine genomics and adaptation, Advanced Studies in Biological Oceanography,
M.Sc. Biological Oceanography, GEOMAR Helmholtz Centre for Ocean Research. |
| 2021-present | Adaptation, Current Topics in Marine Ecology II
M.Sc. Biological Oceanography, GEOMAR Helmholtz Centre for Ocean Research. |
| 2020 | Epigenetics analysis and interpretation
Ecological Genomics, University of Vermont
Graduate level course, four sessions, hands on coding and lecture |
| 2013-2014 | Guest Lecturer
Conservation Genetics, Genetics and Society, University of California-Davis |

Teaching assistant:

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| 2015-2016 | Comparative Genomics BIS181, Department of Microbiology and Molecular Genetics,
University of California-Davis |
| 2013-2015 | Genetics and Society, Department of Science and Society, University of California-Davis |
| 2012-2015 | Introductory Biology, Dept. of Ecology and Evolution, University of California-Davis |

Mentorship

Primary Advisor:

Postdoctoral Scientists (1):

Jennifer Nascimento Schulze, GEOMAR Helmholtz Centre for Ocean Research Kiel. 2023-present

PhD Students (1):

Alexandra Hahn, GEOMAR Helmholtz Centre for Ocean Research Kiel. 2023-present

MSc Students (4):

Samantha Juber, GEOMAR Helmholtz Centre for Ocean Research Kiel. 2023-present
Co-advised with Christopher Monk
Gianina Consing, GEOMAR Helmholtz Centre for Ocean Research Kiel. 2021-present
Sheena Chung, GEOMAR Helmholtz Centre for Ocean Research Kiel. 2021-present
Alexandra Hahn, GEOMAR Helmholtz Centre for Ocean Research Kiel. 2021-2023

Undergraduate students (8):

Sophia Bach, GEOMAR Helmholtz Centre for Ocean Research Kiel, 2023
Myria Schröder, GEOMAR Helmholtz Centre for Ocean Research Kiel, 2022
Rachael Sniderman, University of California Davis. 2017
Angeliki Ioannidis, University of California-Davis. 2015-2017
Man Van La, University of California Davis. 2015-2017
Michelle Tse, University of California Davis. 2012-2014
Ruth Hwang, University of California Davis. 2012-2014
Walter Guillory, Louisiana State University. 2010-2012

Dissertation and thesis committees (8):

MSc (3):

Nils Newrzella, MSc, Christian-Albrechts-University, Kiel. 2023
Katharina Krüger, MSc, Christian-Albrechts-University, Kiel. 2022
Érika E. Kokubun, MSc, GEOMAR Helmholtz Centre for Ocean Research Kiel. 2022

Ph.D. (5):

Peggy Weist, PhD., GEOMAR and Christian-Albrechts-Universität, Kiel. 2023
Irena Chemshirova, PhD., GEOMAR and Christian-Albrechts-Universität, Kiel. 2023
Laura Käse, Ph.D., Christian-Albrechts-Universität, Kiel. 2022
Carsten Spisla, Ph.D., GEOMAR and Christian-Albrechts-Universität, Kiel. 2022
Susanne Schäfer, Ph.D., GEOMAR and Christian-Albrechts-Universität, Kiel. 2022

Seminars and Presentations

Invited Seminars:

2022	SMBE Satellite Meeting on Evolutionary Rescue, Kiel, Germany.
2022	Helmholtz Topic VI Symposium: Marine Life, Kiel, Germany.
2020	GEOMAR Helmholtz Centre for Ocean Research, Kiel, Germany.
2020	California State University Monterey Bay, Department of Biology. USA
2019	Smithsonian Environmental Research Center, USA
2019	University of Maryland, Behavior, Ecology, Evolution, and Systematics Seminar. USA
2019	University of Maryland, Department of Entomology. USA
2017	University of Vermont, Department of Biology. USA
2017	National Institutes of Health, Human Genome Research Institute. USA

Contributed

2023	SMBE Everywhere, Epigenomics in Evolution, Virtual.
2022	International Conference on Copepoda, Virtual.
2021	Society for the Study of Evolution. Virtual.
2019	Society for the Study of Evolution. Providence, RI. USA
2018	University of Vermont, Ecology, Evolution, and Environment Biology Seminar. USA
2017	University of Vermont, Biolunch Seminar Series. USA
2016	Society for the Study of Evolution, Austin, TX. USA

2014	American Physiological Society Comparative Approaches to Grand Challenges in Physiology. San Diego, CA. USA
2013	University of California Davis, Center for Population Biology Seminar Series. USA

Outreach and training

2023	GEOMAR Staff for Diversity; Committee to improve diversity efforts and activities.
2022	Participant in Helmholtz Leadership Academy: Leading your group. Four-part workshop, 12 total days of training focused on developing mentoring skills in science.
2021	Participant in a two-part Anti-racism in Biology workshop and book discussion at UVM led by Dr. Brandon Ogbunugafor and organized by Dr. Brent Lockwood
2019	UVM Representative, Diversity Committee, Geno2Pheno NSF EPSCoR project
2012-2017	UC Davis picnic day: outreach event to build connection between the university and the surrounding community
2015-2016	Graduate Academic Achievement and Advocacy Program Mentor program to support underrepresented undergraduate students interested in attending graduate school
2013-2014	EnvironMentors: Mentoring program for underrepresented high school students. Focused on exposing students to environmental science.

Academic Service

2023	Symposium Organizer, Mechanisms and Costs of Adaptation to Global Change in Aquatic Systems, ASLO Aquatic Sciences Meeting
2022-Present	Organizer, GEOMAR Marine Evolutionary Ecology Seminar Series
2022	Organizer, SMBE Satellite Meeting on Evolutionary Rescue, Kiel, Germany
2021-Present	Member, Kiel Evolution Center
2022-Present	Member, Linnaeus Centre for Marine Evolutionary Biology
2018-Present	Member, NSF Research Coordination Network, Evolution in Changing Seas
2016-2019	Contributing writer, The Molecular Ecologist Blog
2015	Organizational Committee, UC Davis Center for Population Biology Workshop: Questions and methods in ecological genetics
2014	Student Representative: Ecology Graduate Group Admission Committee
Journal Reviews: BMC Genomics, Conservation Physiology, Evolution, Evolutionary Applications, Frontiers Marine Science, Genome Biology and Evolution, Heredity, Journal of Fish Biology, Molecular Biology and Evolution, Molecular Ecology, Molecular Ecology Resources, Physiological and Biochemical Zoology, Royal Society Open Science	
Society Memberships: Society for the Study of Evolution; Society for Molecular Biology and Evolution; World Association of Copepodologists; Association for the Sciences of Limnology and Oceanography	