

ISABELLE P. NEYLAN

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Evolutionary Ecology • Population Biology • Behavioral Ecology • Marine Invertebrate Zoology

EDUCATION

Doctor of Philosophy, 9/2017 – 6/2023

- University of California Davis, Davis, CA; Population Biology Graduate Group
- Advisors: Dr. John Stachowicz & Dr. Andrew Sih

Bachelor of Science, 9/2011 – 6/2015

- Stanford University, Stanford, CA; Biology major with honors, concentration in ecology and evolution
- Major advisor: Dr. Rodolfo Dirzo

RESEARCH POSITIONS

Postdoctoral Research Fellow, 7/2023 – present

- National Science Foundation Postdoctoral Research Fellow in Biology
- Louisiana State University, Baton Rouge, LA
- Mentors: Dr. Morgan Kelly & Dr. Brant Faircloth

Research Technician, 7/2015 – 5/2017

- University of North Carolina, Chapel Hill; Institute of Marine Sciences
- Mentors: Dr. Charles Peterson & Dr. Carter Smith

AWARDS

Best talk, Benthic Ecology Meeting Conference, 4/2022

Best talk (Applied Ecology), Western Society of Naturalists Conference, 10/2021

Firestone Medal for Excellence in Undergraduate Research, Stanford University, 6/2015

FUNDING

\$240,000 **National Science Foundation Postdoctoral Research Fellowship in Biology**, (2023-2026)
\$20,000 **Bilinski Fellowship**, Bodega Marine Lab, (2021)
\$1,995 **Center for Population Biology Affiliate Research Funding**, UC Davis, (2021)
\$120,000 **California Sea Grant Graduate Research Fellowship**, UC Davis, (2020-2022)
\$2,983 **Henry A. Jastro Graduate Research Award**, UC Davis, (2019-2020)
\$25,355 **Population Biology Graduate Group Fellowship**, UC Davis, (2017-2018)
\$138,000 **National Science Foundation Graduate Research Fellowship Program**, (2017-2021)
\$6,000 **Undergraduate Advising and Research Major Grant**, Stanford University, (2014-2015)

PEER-REVIEWED PUBLICATIONS

Google Scholar h-index: 9 | i10-index: 9 | Citations: 723

¹Authors contributed equally

19. **Neylan, I. P.**, Salgado, A. L., Vaidya, R., Guillory, C., Kelly, M. W. Context matters: A meta-analysis of the variable impacts of transgenerational and developmental plasticity on responses to stress. **Functional Ecology**, *Accepted*. <https://doi.org/10.1111/1365-2435.70168>
BioRxiv preprint: <https://doi.org/10.1101/2025.08.13.670161>
18. Vaidya, R. V.¹, **Neylan, I. P.**,¹ Dassanayake, M., Faircloth, B. C., Kelly, M. W. Complementary roles for differential gene expression and exon use in the heat shock response of an intertidal copepod. **Integrative and Comparative Biology** icaf032. <https://doi.org/10.1093/icb/icaf032>
17. Griffiths, J. S.¹, Sasaki, M.¹, **Neylan, I. P.**, Kelly, M. W. (2024). The potential for experimental evolution to uncover trade-offs associated with anthropogenic and climate change adaptation. **Global Change Biology** 30(11), e17584. <http://dx.doi.org/10.1111/gcb.17584>
16. **Neylan, I.P.**, Longman, E. K., Sanford, E., Stachowicz, J. J., Sih, A. (2024). Long-term anti-predator learning and memory differ across populations and sexes in an intertidal snail. **Proceedings of the Royal Society B** 291(2032), 20240944. <https://doi.org/10.1098/rspb.2024.0944>
15. Smith, C.S., Kochan, D.P., **Neylan, I.P.**, Gittman, R.K. (2024). Living shorelines equal or outperform natural shorelines as fish habitat over time: Updated results from a long-term BACI study at multiple sites. **Estuaries and Coasts** 1-15. <https://doi.org/10.1007/s12237-024-01429-5>.
14. **Neylan, I.P.**, Swezey, D. R., Boles, S.E., Sih, A., Stachowicz, J.J. (2024). Long-term stress legacy effects of ocean acidification on red abalone (*Haliotis rufescens*) growth and performance. **Global Change Biology** 30(1), e17048. <https://doi.org/10.1111/gcb.17048>
13. Clement, D., **Neylan, I. P.**, Roberts, N. J., Schreiber, S., Trimmer, P. C., & Sih, A. (2023). Evolutionary history mediates population response to rapid environmental change through within-generational and transgenerational plasticity. **American Naturalist** 201(5), E90-E109. <https://doi.org/10.1086/723624>
12. **Neylan, I.P.**, Sih, A., Stachowicz, J. J. (2022). Local adaptation in the transgenerational response to copper pollution in the bryozoan *Bugula neritina*. **Ecology and Evolution** 12(11), e9524. <https://doi.org/10.1002/ece3.9524>
11. Sih, A., Chung, H. J., **Neylan, I.P.**, Ortiz-Jimenez, C., Sakai, O., Szeligowski, R. (2022) Fear generalization and behavioral responses to multiple dangers. **Trends in Ecology and Evolution** 38(4). <http://doi.org/10.1016/j.tree.2022.11.001>
10. Boles, S. E., **Neylan, I. P.**, Rogers-Bennett, L., & Gross, J. A. (2022). Evaluation of gonad reproductive condition using non-invasive ultrasonography in red abalone (*Haliotis rufescens*). **Frontiers in Marine Science** 9, 784481. <https://doi.org/10.3389/fmars.2022>
9. Sobral, M., **Neylan, I. P.**, Narbona, E., & Dirzo, R. (2021). Transgenerational plasticity in flower color induced by caterpillars. **Frontiers in Plant Science** 12, 617815. <https://doi.org/10.3389/fpls.2021.617815>
8. Sobral, M., Sampedro, L., **Neylan, I.P.**, Siemens, D., & Dirzo, R. (2021). Phenotypic plasticity in plant defense across life stages: inducibility, transgenerational induction, and transgenerational priming in wild radish. **Proceedings of the National Academy of Sciences of the United States of America** 118(33), e2005865118. <https://doi.org/10.1073/pnas.2005865118>

7. Smith, C.S., Paxton, A.B., Donaher, S.E., Kochan, D.P., **Neylan, I.P.**, Pfeifer, T., Van Hoeck, R.V. and Taylor, J.C. (2021). Acoustic camera and net surveys reveal that nursery enhancement at living shorelines may be restricted to the marsh platform. **Ecological Engineering** 166, 106232. <https://doi.org/10.1016/j.ecoleng.2021.106232>
6. **Neylan, I.P.**, Smith, C.S., Swanson, E.D., Fegley, S.R., Gittman, R.K. (2019). Interspecific and intraspecific interactions between fiddler crabs *Minuca pugnax* (mud fiddler) and *Leptuca pugilator* (sand fiddler) influence species' burrowing behavior. **Journal of Experimental Marine Biology and Ecology** 517, 40-48. <https://doi.org/10.1016/j.jembe.2019.05.010>
5. **Neylan, I.P.**, Dirzo, R., Sobral, M. (2018). Cumulative effects of transgenerational induction on plant palatability to generalist and specialist herbivores. **Web Ecology** 18, 41–46. <https://doi.org/10.5194/we-18-41-2018>
4. Needleman, R.K., **Neylan, I.P.**, Erickson, T.B. (2018). Environmental and ecological effects of climate change on venomous marine and amphibious species in the wilderness. **Wilderness and Environmental Medicine** 29, 343–356. <https://doi.org/10.1016/j.wem.2018.04.003>
3. Needleman, R.K., **Neylan, I.P.**, Erickson, T. (2018). Potential environmental and ecological effects of global climate change on venomous terrestrial species in the wilderness. **Wilderness and Environmental Medicine**, 29, 226–238. <https://doi.org/10.1016/j.wem.2017.11.004>
2. Smith, C.S., Gittman, R.K., **Neylan, I.P.**, Scyphers, S.B., Morton, J.P., Joel Fodrie, F., Grabowski, J.H., Peterson, C.H. (2017). Hurricane damage along natural and hardened estuarine shorelines: Using homeowner experiences to promote nature-based coastal protection. **Marine Policy** 81, 350–358. <https://doi.org/10.1016/j.marpol.2017.04.013>
1. Gittman, R.K., Scyphers, S.B., Smith, C.S., **Neylan, I.P.**, Grabowski, J.H., 2016. Ecological consequences of shoreline hardening: A meta-analysis. **Bioscience** 66(9), 763-773. <https://doi.org/10.1093/biosci/biw091>

MANUSCRIPTS UNDER REVIEW/IN PREP

- R1. **Neylan, I. P.**, Vaidya, R. V. Crable, E. L., Faircloth, B. C., Dassanayake, M., Kelly, M. W. Genetic assimilation and accommodation shape adaptation to heat stress in a splash pool copepod. **Proceedings of the National Academy of Sciences of the United States of America**. *Submitted*.
BioRxiv pre-print: <https://doi.org/10.1101/2025.09.09.675189>

DISSERTATION

The legacy of stress: Understanding the eco-evolutionary dynamics that promote adaptive within-generational and transgenerational plasticity. University of California, Davis. Committee: J.J. Stachowicz, A. Sih, E. Sanford. Proquest, UC Davis Library.

UNDERGRADUATE THESIS

The effects of herbivory, transgenerational changes, and conspecific communication on the induced defenses of wild radish. Stanford University, Stanford, CA. Research sponsor: R. Dirzo, Second reader: T. Fukami.

TEACHING EXPERIENCE

Instructor, Ecology Statistics Seminar, Louisiana State University, Spring 2024 (14 students)

Lecturer, Marine Ecology, Oakmont Lifelong Learning Center, Spring 2023 (40 students)

Teaching Assistant, Biological Sciences – Ecology & Evolution (lab sections), University of California, Davis, Spring 2023 (48 students, 2 sections)

Teaching Assistant, Marine Ecology, University of California, Davis, Winter 2023 (130 students)

Instructor, Behavioral Ecology (CURE), University of California, Davis, Fall 2022 (19 students)

ADDITIONAL RESEARCH EXPERIENCE

Research Associate, Stachowicz Lab, University of California Davis, Bodega Marine Lab, 6/2017 – 9/2017

Honors Thesis, Dirzo Lab, Biology Department, Stanford, CA 2/2014 – 6/2015

Research Assistant, Block Lab, Stanford University, Hopkins Marine Station, Monterey, CA 1/2014 – 4/2014

Intern, Block Lab, Stanford University, Hopkins Marine Station, Monterey, CA 6/2013 – 9/2013

Research Assistant, Dirzo Lab, Biology Department, Stanford, CA 8/2012 – 6/2013

INVITED TALKS

2025 Invited panelist, National Academy of Sciences Gulf Research Program, Genomics Approaches to Understanding, Managing, and Monitoring Biodiversity in the U.S. Gulf. New Orleans, LA

2023 Louisiana State University, Department of Biological Sciences. Baton Rouge, LA

2023 University of California, Davis, Center for Population Biology [Exit Seminar]. Davis, CA

2020 University of California, Davis, Center for Population Biology [Entrance Seminar]. Davis, CA

SELECTED CONFERENCE PRESENTATIONS

^U Indicates undergraduate mentee | ^{**} Indicates awarded best talk

Neylan, I. P., Vaidya, R. V., Crable, E., Faircloth, B. C., Kelly, M. W. Evidence for genetic assimilation and accommodation in adaptive heat tolerance across populations of the splash pool copepod *Tigriopus californicus*. *Oral presentation*. Evolution Conference, Athens, GA. June 2025.

Neylan, I. P., Vaidya, R. V., Crable, E., Faircloth, B. C., Kelly, M. W. Evidence for genetic assimilation and accommodation in adaptive heat tolerance across populations of the splash pool copepod *Tigriopus californicus*. *Oral presentation*. Benthic Ecology Meeting Conference, Mobile, AL. April 2025.

Neylan, I. P., Vaidya, R. V., Crable, E., Faircloth, B. C., Kelly, M. W. Developmental and transgenerational plasticity interactively affect thermal tolerance across populations of the splash pool copepod *Tigriopus californicus*. *Oral presentation*. 3rd Joint Congress on Evolutionary Biology, Montreal, Canada. July 2024.

^U Gonzalez, X. M., **Neylan, I. P.**, Vaidya, R. V., Kelly, M. W. I'm just a girl in this copepod world: Sex-based differences in *Tigriopus californicus*. *Oral presentation*. Louisiana State University Discover Day - Undergraduate research & creativity conference. Baton Rouge, LA. April 2024.

Neylan, I.P., Longman, E. K., Sanford, E., Stachowicz, J. J., Sih, A. Long-term antipredator learning and memory in an intertidal snail. *Oral presentation*. The Society for Integrative and Comparative Biology Conference, Seattle, WA. January 2024.

^U Cho, Y., **Neylan, I.P.**, Stachowicz, J. J. Geographic variation in shell shape in the marine snail (*Nuccella canaliculata*) across California and Oregon coasts. *Poster presentation*. Undergraduate Research Conference, University of California, Davis, CA. April 2023.

Neylan, I.P., Longman, E. K., Sanford, E., Stachowicz, J. J., Sih, A. Antipredator behavior and morphology vary across populations and risk levels in a marine snail (*Nuccella canaliculata*). *Poster presentation*. Western Society of Naturalists Conference, Oxnard, CA. November 2022.

- Neylan, I.P.**, Longman, E. K., Sanford, E., Stachowicz, J. J., Sih, A. Antipredator behavior and morphology vary across populations and risk levels in a marine snail (*Nucella canaliculata*). *Poster presentation*. Gordon Research Conference: Predator-Prey Interactions, Luca, Italy. October 2022.
- ** Neylan, I.P.**, Swezey, D. R., Boles, S. E., Gross, J., Sih, A., Stachowicz, J. J. Long-term effects of ocean acidification on red abalone (*Haliotis rufescens*) growth and performance. *Oral presentation*. Benthic Ecology Meeting Conference, Portsmouth, NH. April 2022.
- ** Neylan, I.P.**, Swezey, D. R., Boles, S. E., Sih, A., Stachowicz, J. J. Long-term effects of ocean acidification on red abalone (*Haliotis rufescens*) growth and performance. *Oral presentation*. Western Society of Naturalists Conference, virtual. October 2021.
- Neylan, I.P.**, Sih, A., Stachowicz J. J. Local adaptation in the transgenerational response to copper pollution in the bryozoan *Bugula neritina*. *Oral presentation*. Western Society of Naturalists Conference, virtual. October 2020.
- ^U Echeverria, N., **Neylan, I.P.**, Stachowicz, J. J. Shell morphology and anti-predator behavior changes in *Nucella lamellosa*. *Poster presentation*. Society for the Advancement of Chicanos/Hispanics & Native Americans in Science Conference, Honolulu, HI. October 2019.
- Neylan, I. P.**, Smith, C. S., Peterson, C. H. Assessing the habitat use and optimal construction of marsh sills through benthic infaunal community composition. *Poster presentation*. North Carolina Sea Grant Graduate Training Symposium, New Bern, NC. April 2016.
- Neylan, I. P.**, Smith, C. S., Peterson, C. H. Assessing the habitat use and optimal construction of marsh sills through benthic infaunal community composition. *Poster presentation*. Atlantic Estuarine Research Society (AERS) Meeting, Virginia Beach, VA. March 2016.
- Neylan, I. P.** Herbivory, transgenerational changes, and communication in wild radish. *Oral presentation*. University of North Carolina Chapel Hill Department of Marine Sciences Graduate Student Symposium, Morehead City, NC. September 2015.
- Neylan, I.**, Sobral, M., Dirzo, R. The effects of herbivory, transgenerational changes, and conspecific communication of the induced defenses of wild radish (*Raphanus raphanistrum*). *Poster presentation*. Stanford University Biology Department Achauer Honors Symposium, Stanford, CA. May 2015.

MENTORSHIP/ADVISING

+indicates advising on independent/thesis project

Graduate students:

- Rujuta Vaidya; LSU (2023 – present)
- Wissam Jawad; LSU (2023 – present)
- Ahmani Browne; LSU (2024 – present)

Technicians/Postbaccalaureate researchers:

- Christian Mack; LSU (2024 – present) +
- Emma Crable; LSU (2023 – 2025)
- Jeanne Smith; LSU (2023 – 2024) +
- Audrey Deutsch; UC Davis (2019 – 2022)

Undergraduate students:

- Cullen Guillory; LSU (2024 – present) +
- Suzie Henegan; LSU (2024 – present)
- Kirsten Adams; LSU (2024 – 2025) +
- Xochitl Gonzalez; LSU (2023 – 2024) +
- Michelle Flores-Acosta; LSU (2023 – 2024) +

- Ria Salaway; LSU (2023 – 2024) +
- Yujin Cho; UC Davis (2021 – 2023) +
- Julia Delamare; UC Davis (2021 – 2022)
- Nayeli Echeverria; UC Davis (2019 – 2020) +
- Felicia Song; UC Davis (2019 – 2020)
- Alicia Rasmussen; UC Davis (2019 – 2020)
- Sara Edwards; UNC Chapel Hill (2016 – 2017) +
- Anna Brodmerkel; UNC Chapel Hill (Summer 2016)
- Abigail Henderson; UNC Chapel Hill (Summer 2016)
- Katie Mcquillan; UNC Chapel Hill (Summer 2016)
- Steven Tulevech; UNC Chapel Hill (Summer 2016)
- Anderson Tran; UNC Chapel Hill (2015 – 2016) +

Training/certificates:

- Center for the Improvement of Mentored Experiences in Research (CIMER) “Entering Mentoring” workshop (11/2024)
- Marine Science Laboratory Alliance Center of Excellence (MarSci-LACE) Mentor Development workshop (9/2023)
- Biology Education & Evidence-Based Teaching seminar (1/2022-3/2022)
- Santa Rosa Junior College-Bodega Marine Lab (SRJC-BML) Internship Program Mentor Training (Participated - 6/2019; Developed and led - 6/2021, 6/2022)

OUTREACH & SERVICE

Mentor, The Louisiana Graduate Network in Applied Evolution (LAGNiAppE) Post-Baccalaureate Training Program, Baton Rouge, LA, 7/2023 – present

Member, Diversity, Equity, and Inclusion (DEI) Committee for Bodega Marine Lab, Bodega Bay, CA, 11/2021 – 6/2023

Co-director, Santa Rosa Junior College-Bodega Marine Lab (SRJC-BML) Internship Program, Bodega Bay, CA, 10/2020 – 5/2023

Outreach coordinator, Bodega Marine Sciences Association, Bodega Bay, CA, 2/2021 – 6/2023

Mentor and writing resource, Evolution and Ecology Graduate Admissions Pathways (EEGAP) Program, NSF GRFP prep 5/2020 - 10/2020

Mentor, UC Davis CMSI and BML mentorship program 5/2020 – 9/2020

Mentor and facilitator, Ecology, Evolution, and Biodiversity graduate school preview program 5/2020 – 10/2020

Mentor, Santa Rosa Junior College-Bodega Marine Lab (SRJC-BML) Internship program, Bodega Bay, CA, 5/2019 – 8/2019

Member, Bodega Science Communication Collective, Bodega Bay, CA, 8/2018 – 10/2019

Activity coordinator, STEM Squad middle school science program, Davis, CA 6/2019 – 6/2020

Volunteer coordinator and founding member, STEM Squad middle school science program, Davis, CA 10/2017 – 6/2019

Member, ESTEME (Equity in Science, Technology, Engineering, Math, and Entrepreneurship), Davis, CA 9/2017 – 3/2020

Coordinator and instructor, Exploring Estuarine Shoreline Habitats Teacher Workshop, Morehead City, NC 7/2015-7/2016

Mentor, Science in Service, Stanford, CA, 1/2015 – 6/2015

Tutor and field instructor, Eastside College Preparatory School, Stanford, CA 4/2014 – 6/2015

Leader, Stanford Outdoor Outreach Program (SOOP), Stanford, CA 9/2012 – 5/2015

Neylan CV

October 2025

Reviewer: Marine Ecological Progress Series (2), Marine Ecology (1), Flora (1), Evolution (1), Behavioral Ecology (1), Molecular Ecology (1), Heredity (2), Entomologia Generalis (1), Behavioral Ecology and Sociobiology (1)

Professional Memberships: Society for the Study of Evolution, Society for Integrative and Comparative Biology, Western Society of Naturalists

OTHER SKILLS

AAUS scientific diving, animal husbandry, larval culture, seawater system design and maintenance, boat operations, bioinformatics