

Brian S. Cheng

University of Massachusetts Amherst
Department of Environmental Conservation
160 Holdsworth Way, Amherst, MA 01003
Email: bscheng@umass.edu Web: <https://bscheng.com>

EDUCATION

Ph.D. Ecology, 2014 University of California, Davis
M.S. Biology, 2008 San Diego State University
B.S. Aquatic Biology, 2001 University of California, Santa Barbara

PROFESSIONAL APPOINTMENTS

Assistant Professor University of Massachusetts Amherst
Department of Environmental Conservation, September 2017 - Current

Scientist-in-Residence University of New Hampshire/Cornell University
Shoals Marine Laboratory, May – August 2017

Postdoctoral Fellow Smithsonian Institution
Marine Global Earth Observatory, November 2014 – May 2017
Collaborators: Drs. Greg Ruiz, Mark Torchin, Andrew Altieri

PUBLICATIONS

Lab members underlined

Submitted/In revision

Cheng, B.S., J. Blumenthal, A.L. Chang, J.M. Barley, M.C. Ferner, K.J. Nielsen, G.M. Ruiz, C.J. Zabin. Severe introduced predator impacts despite attempted functional eradication.

Barley, J.M., B.S. Cheng, M. Sasaki, S. Gignoux-Wolfsohn, C.G. Hays, A.B. Putnam, S. Sheeth, A.R. Villeneuve, M.W. Kelly. Limited plasticity in thermally tolerant populations: evidence for a trade-off.

Ashton, G.V., A. Freestone, ... B.S. Cheng ..., G.M. Ruiz (18th of 64 authors). Predator control of marine communities increases with temperature across 115 degrees of latitude.

Published

Villeneuve, A.R., L.M. Komoroske, B.S. Cheng. Environment and phenology shape local adaptation in thermal performance. **Proceedings of the Royal Society B** 288:20210741

Villeneuve, A.R., L.M. Komoroske, B.S. Cheng. Diminished warming tolerance and plasticity in low latitude populations of a marine gastropod. **Conservation Physiology** 9:coab039

Hollarsmith, J.A., J.S. Sadowski, M.M.M. Picard, B.S. Cheng, J. Farlin, A. Russell, E.D. Grosholz. (2020) Relative effects of event-driven estuarine acidification (EA) on growth and survival of native and commercial oysters. **Limnology and Oceanography** 65:224-235.

Banerjee, S.M., C.D. Allen, T. Schmitt, B.S. Cheng, J. A. Seminoff, T. Eguchi, L. M. Komoroske. (2019) Baseline health parameters of eastern Pacific green turtles at Southern California foraging grounds. **Chelonian Conservation and Biology** 18:163-174.

Cheng, B.S., A.H. Altieri, M.E. Torchin, and G.M. Ruiz. (2019) Can marine reserves restore lost ecosystem function? a global synthesis. **Ecology** 100:e02617. *Featured on [Nature Sustainability](#) | [Science Daily](#)*

Cheng, B.S., G.M. Ruiz, A.H. Altieri, M.E. Torchin. (2019) The biogeography of invasion in tropical and temperate seagrass beds: testing interactive effects of predation and propagule pressure. **Diversity and Distributions** 25:285-297.

Bible, J.M., B.S. Cheng, A.L. Chang, M.C. Ferner, K. Wasson, C.J. Zabin, M. Latta, E. Sanford, A. Deck, and E.D. Grosholz. 2017. Timing of stressors alters interactive effects on a coastal foundation species. **Ecology** 98:2468-2478

- Cheng, B.S., L.M. Komoroske, and E.D. Grosholz. 2017. Trophic sensitivity of invasive predator and native prey interactions: integrating environmental context and climate change. **Functional Ecology** doi: 10.1111/1365-2435.12759 *Featured on [Capital Public Radio NPR](#) | [Discovery News](#) | [Grist](#)*
- Cheng, B.S., A.L. Chang, A. Deck, and M.C. Ferner. 2016. Atmospheric rivers and the mass mortality of wild oysters: insight into an extreme future? **Proceedings of the Royal Society B** 283:20161462 *Featured on [NPR](#) | [LA Times](#) | [Science News](#) | [Motherboard VICE](#) | [Marin Independent](#) | [NRDC](#)*
- Cheng, B.S. and E.D. Grosholz. 2016. Environmental stress mediates trophic cascade strength and resistance to invasion. **Ecosphere** 7(4):e01247.10.1002/ecs2.1247
- Cheng, B.S., J.M. Bible, A.L. Chang, M.C. Ferner, K. Wasson, C.J. Zabin, M. Latta, A. Deck, A.E. Todgham, and E.D. Grosholz. 2015. Testing local and global stressor impacts on a coastal foundation species using an ecologically realistic framework. **Global Change Biology** 21:2488-2499.
- Williams, S.L., N. Janetski, S. Blankenhorn, J. Abbott, B.S. Cheng, E. Crafton, D. Trockel. 2014. Ornamental marine species culture in the coral triangle: seahorse demonstration project in the Spermonde Islands, Sulawesi, Indonesia. **Environmental Management**. 10.1007/s00267-014-0343-6.
- Komoroske, L.M., R. Connon, J. Lindberg, B.S. Cheng, G. Castillo, M. Hasenbein, N. Fangue. 2014. Ontogeny influences sensitivity to climate change stressors in an endangered fish. **Conservation Physiology** 2:cou008-cou008.
- Kimbro, D.L., B.S. Cheng, and E.D. Grosholz. 2013. Biotic resistance in marine environments. **Ecology Letters** 16:821-833.
- Woodson, C.B., J.A. Barth, O.M. Cheriton, M.A. McManus, J.P. Ryan, L. Washburn, K.N. Carden, B.S. Cheng, J. Fernandes, L.E. Garske, T.C. Gouhier, A.J. Haupt, K.T. Honey, M.F. Hubbard, A. Iles, L. Kara, M.C. Lynch, B. Mahoney, M. Pfaff, M.L. Pinsky, M.J. Robart, J.S. Stewart, S.J. Teck, A. True. 2011. Observations of internal wave packets propagating along-shelf in northern Monterey Bay. **Geophysical Research Letters** 38: L01605.
- Cheng, B.S. and K.A. Hovel. 2010. Biotic resistance to invasion along an estuarine gradient. **Oecologia** 164:1049-1059.

Reports

- Wasson, K., C. Zabin, J. Bible, E. Ceballos, A. Chang, B.S. Cheng, A. Deck, E.D. Grosholz, M. Latta, M. Ferner. 2014. A Guide to Olympia Oyster Restoration and Conservation.
- Cheng, B.S. and E. Gaskin (editors). 2011. Climate Impacts to the Nearshore Marine Environment and Coastal Communities: American Samoa and Fagatele Bay National Marine Sanctuary. Marine Sanctuaries Conservation Series ONMS-11-05. U.S. Department of Commerce, NOAA, Office of National Marine Sanctuaries, Silver Spring, MD. 71 pp. (Peer reviewed NOAA Report)
- Largier, J.L., B.S. Cheng, and K.D. Higgason (editors). 2010. Climate Change Impacts: Gulf of the Farallones and Cordell Bank National Marine Sanctuaries. Report of a Joint Working Group of the Gulf of the Farallones and Cordell Bank National Marine Sanctuaries Advisory Councils. Marine Sanctuaries Conservation Series ONMS-11-04. U.S. Department of Commerce, NOAA, Office of National Marine Sanctuaries, Silver Spring, MD. 121 pp. (Peer reviewed NOAA Report)

EXTRAMURAL FUNDING

National Science Foundation – Biological Oceanography

Title: “Investigating mechanisms underlying adaptive capacity to ocean warming”

Duration: 2021-2023, \$859,709, **Lead-PI: Brian Cheng**

NOAA National Sea Grant – American Lobster Research Program

Title: “A socio-economic investigation engaging stakeholders in the development and evaluation of an alternative bait in the Gulf of Maine lobster fishery”

Duration: 2021-2022, \$299,899, **Co-PI: Brian Cheng**

Massachusetts Department of Agricultural Resources

Title: “Western Massachusetts Center for Sustainable Aquaculture”

Project location: University of Massachusetts Amherst

Duration: 2019-2020, Award amount: \$11,747, **Co-PI: Brian Cheng**
National Science Foundation – Facilities Improvement Field Stations and Marine Laboratories
 Title: “Developing a Strategic Plan for Coastal Resilience and Sustainable Fisheries at the Gloucester Marine Station” Duration: 2018-2019, \$24,986, **Lead-PI: Brian Cheng**
California Coastal Conservancy
 Title: “Community-based Research for Living Shorelines Design”
 Duration: 2017-2018, \$152,000, **Co-PI: Brian Cheng**

FELLOWSHIPS/SMALL GRANTS

University of Massachusetts Amherst, Student Centered Learning Fellowship, 2017	\$1,000
Smithsonian MarineGEO Postdoctoral Fellowship, 2014-2016	\$120,000
Bodega Marine Laboratory Fellowship, spring and summer 2010 and 2013	
Melbourne R. Carriker Student Research Grant, 2012	\$1,250
Pacific Coast Science and Learning Center Grant, 2011-12	\$5,000
UC Davis James P. Michelletti Research Fellowship, 2010	\$2,425
George Melendez Wright National Park Fellowship, 2010	\$11,245
Pacific Coast Science and Learning Center Grant, 2010	\$5,100
National Science Foundation GK-12 Fellow, 2010-2011	\$60,000
UC Davis Jastro Shields Research Fellowship, 2009	\$3,000
UC Davis Graduate Group in Ecology – Block Grant 2009-10 (3 quarters)	
PADI Foundation Grant, 2009	\$4,250
National Estuarine Research Reserve Graduate Research Fellowship, 2009 - 2012	\$60,000
Western Society of Malacologists – Student Research Grant, 2007	\$700
Robert L. Wiegel Scholarship for Coastal Studies, 2006	\$1,000
San Diego State University – Edna Bailey Sussman Foundation, 2006	\$5,880
San Diego State University – Mabel Myers Memorial Scholarship, 2006	\$1,000

AWARDS

Ecological Society of America - Honorable Mention - Natural History Award, 2014
 Western Society of Naturalists - Honorable Mention - Mia Tegner Award, 2013
 International Conference on Marine Bioinvasions – Best Paper, 2013
 California Estuarine Research Society – Honorable Mention, Best Paper, 2012
 Western Society of Naturalists – Best Paper, Population Biology, 2008
 National Science Foundation – Antarctic Service Medal, 2006

TEACHING & MENTORING EXPERIENCE

Instructor

University of Massachusetts Amherst

Introduction to Applied Ecology (NRC 252 / ENVIRSCI 214) – spring 2018, spring 2019
 Marine Ecology (NRC 590M) – fall 2018, fall 2020
 Global Change Ecology (NRC 494GI) – fall 2019

Shoals Marine Laboratory

Underwater Research (MEFB 730) - summer 2019

Supervisor/Mentor

I have supervised 3 graduate students and 5 paid undergraduate/post-graduate research technicians and 10 volunteers who assisted in my graduate and postdoctoral field and laboratory research. I acquired funding support for the technicians and hired them from applicant pools. (Current occupations listed parenthetically)

- Alysha Putnam, Ph.D. Student, Organismic & Evolutionary Biology (UMass Amherst)

- Jordanna Barley, Ph.D. Student, Organismic & Evolutionary Biology (UMass Amherst)
- Andrew Villeneuve, M.S. Student, Dept. of Environmental Conservation (UMass Amherst)
- Nico Lorenzen (currently Ph.D. student, University of Southern California)
- Chris Knight (currently Ph.D. student, Stanford University)
- Charlie Norton (currently Biologist, United States Geological Survey)
- Jessica Couture (currently Ph.D. student, University of California Santa Barbara)
- Sarah Covello (currently volunteer, Peace Corps)

Teaching Fellow

- Mentor and teaching fellow under CAMEOS (Coastal, Atmospheric, Marine, Environmental Oceanography Science) at UC Davis. Mentored 2 high school biology and one AP Environmental Science classes in year-long independent inquiry projects that culminated in student presentations at a simulated scientific conference. 7/2010 - 7/2011

National Science Foundation GK-12

SELECTED PRESENTATIONS

Invited Seminars

2020. Smithsonian Environmental Research Center, Smithsonian Marine Global Earth Observatory (webinar)
2020. School of Marine Sciences, University of Maine, Orono, ME.
2019. Department of Biology, Bowdoin College, Brunswick, ME.
2017. Department of Biology, University of Massachusetts, Boston, MA.
2017. Department of Environmental Conservation, University of Massachusetts, Amherst, MA.
2016. Department of Biology, East Carolina University, NC.
2016. School of Marine and Atmospheric Sciences, State University of New York, Stony Brook, NY.
2016. Department of Biology, Reed College, OR.
2010. Romberg Tiburon Center, San Francisco State University, CA.

Contributed Talks

- Cheng, B.S.**, A.L. Chang, A. Deck, M.C. Ferner. Atmospheric rivers and the mass mortality of wild oysters: insight into an extreme future? 2017. Coastal & Estuarine Research Federation, Providence, RI.
- Cheng, B.S.**, A.L. Chang, A. Deck, M.C. Ferner. Atmospheric rivers and the mass mortality of wild oysters: insight into an extreme future? 2016. Western Society of Naturalists, Monterey, CA.
- Cheng, B.S.** and E.D. Grosholz. The enemy of my enemy is my friend: cascading effects of biotic resistance and the creation of predator free space. 2014. Ecological Society of America, Sacramento, CA.
(Honorable Mention – ESA Natural History Award)
- Cheng, B.S.**, J. Bible, A. Chang, M. Ferner, K. Wasson et al. Local environmental stress can outweigh climate change: multiple stressors over ecologically relevant time reveal additive effects. 2014. Ocean Sciences Meeting, Honolulu, HI.
- Cheng, B.S.**, J. Bible, A. Chang, M. Ferner, K. Wasson, et al. Current environmental stress can outweigh climate change stressors. 2013. Western Society of Naturalists, Oxnard, CA.
(Honorable Mention – Mia Tegner Conservation Award)
- Cheng, B.S.**, J. Bible, A. Chang, M. Ferner, K. Wasson, et al. Additive and opposing effects of multiple stressors across realistic time scales. 2013. Coastal & Estuarine Research Federation, San Diego, CA.
- Cheng, B.S.** and E.D. Grosholz. Divergent responses to climate change: differing sensitivities among invasive predators and native prey. 2013. International Conference on Marine Bioinvasions, Vancouver, Canada. **(Best student paper)**

- Cheng, B.S.**, J. Bible, A. Todgham, N. Miller, A. Chang, et al. A test of multiple stressors and latent effects on a foundational estuarine species, the Olympia oyster (*Ostrea lurida*). 2013. Society for Int. & Comp. Bio., San Francisco, CA.
- Cheng, B.S.**, J. Bible, A. Chang, M. Ferner, K. Wasson, et al. Multiple stressors and latent effects on Olympia oysters. 2012. California Estuarine Research Society, Long Beach, CA.
(Honorable Mention – Best Student Paper)
- Cheng, B.S.** and E.D. Grosholz. Thermal performance of an invasive predator and native prey interaction: Implications for Climate Change. 2011. Western Society of Naturalists, Vancouver, WA.
- Cheng, B.S.** and E.D. Grosholz. Community responses to global change: native and invasive species temperature sensitivity. 2011. George Wright Society. New Orleans, LA. (Poster)
- Cheng, B.S.** Climate Change and Nearshore Subtidal and Rocky Intertidal Biological Responses. 2010. California and the World Oceans, San Francisco, CA.
- Cheng, B.S.** and K.A. Hovel. Biotic resistance by an exploited native species: consequences for predator loss. 2008. Western Society of Naturalists, Vancouver, Canada.
(Best student paper – Population Biology)

RESEARCH & PROFESSIONAL EXPERIENCE

- NOAA National Marine Sanctuaries Contract Scientist** **NMS of American Samoa**
Wrote and edited a federal climate change assessment report for National Marine Sanctuary (NMS) of American Samoa. Synthesized relevant climate change literature. 9/2010 – 4/2011
- NOAA Climate Change Site Scenario Coordinator** **Greater Farallones NMS, CA**
Wrote and edited a federal climate change assessment report for the Gulf of the Farallones and Cordell Bank National Marine Sanctuaries. Synthesized relevant climate change literature.
Coordinated site scenario meetings with oceanographic and ecological experts. 11/2008 – 03/2010
- Scientific Research Diver** **San Diego State University, CA**
Employed acoustic telemetry equipment to track California spiny lobster (*Panulirus interruptus*) nocturnal movement patterns. Surveyed spiny lobster habitat using SCUBA and small craft.
Deployed tethered lobsters to assess relative predation rates inside a MPA. 07/2005 – 09/2005
- Aquarist** **Aquarium of the Pacific, Long Beach, CA**
Conducted quarantine protocol for captive fish and invertebrates. Maintained 8,000-gallon life support systems. Educated and managed volunteer husbandry staff and divers. 5/2004 – 6/2005
- Assistant Project Leader** **Palmer Station, Antarctica**
Lead research shift onboard R/V Laurence M. Gould (230' vessel). Trained crew in zooplankton identification and sampling technique. Collected under ice Antarctic krill (*Euphausia superba*) using SCUBA. Sampled zooplankton with acoustics and net tows (19' Zodiac). 10/2003 – 1/2004
- Lead Aquarist** **Ocean Institute, Dana Point, CA**
Established and maintained 15,000-gallon seawater system. Managed (3) aquarists and (15) volunteers. Operated small craft collection trips (22' Whaler) 4/2002 – 9/2003
- Research Technician** **Palmer Station, Antarctica**
Sampled zooplankton using net tows and acoustics. Organized logistical cargo and specimens for transit. Conducted fecundity and growth experiments on Antarctic krill. 12/2001 – 01/2002

RELEVANT SKILLS

- Statistics: generalized linear mixed modeling, monte carlo methods, multivariate statistics using R
- AAUS Research Diver (60-foot certification) / 550 Completed Research & Collecting Dives
- Smithsonian / University of California & CSU small craft and boat trailer operator
- NAUI Safety Rescue Diver / AAUS Dry-suit certification / AGA Full Face Mask Trained

PROFESSIONAL SERVICE & ASSOCIATIONS

Panel reviewer: California Sea Grant, National Science Foundation

Grants reviewer: Graduate Women in Science, National Geographic Society, National Science Foundation – Biological Oceanography (ad hoc)

Journal reviewer: Biological Conservation, Biological Invasions, Diversity & Distributions, Ecological Applications, Ecology, Ecology & Evolution, Ecosphere, Estuaries & Coasts, Global Change Biology, Global Ecology & Biogeography, Hydrobiologia, Journal of Experimental Marine Biology & Ecology, Limnology & Oceanography, Marine Biology, Marine Ecology, Marine Ecology Progress Series, Marine Environmental Research, Neobiota, Oecologia, PLoS ONE, Proceedings of the Royal Society B, Scientific Reports, San Francisco Estuary & Watershed Science

Professional Associations: Ecological Society of America, Coastal & Estuarine Research Federation, Western Society of Naturalists, Society for Integrative and Comparative Biology, National Shellfisheries Association

Service

- UMass Amherst School of Earth and Sustainability Steering Committee 2020-
- UMass Amherst Quantitative Sciences Group 2017-
- Bodega Marine Sciences Association – President, 2011-2013
- UC Davis, Bodega Marine Laboratory Seminar Series Organizer 2010-2012
- UC Davis, Graduate Group in Ecology Awards Committee Reviewer, 2010-2012
- UC Davis, Graduate Group in Ecology Admissions Reviewer, 2010
- SDSU Faculty Search Student Representative – Marine Ecologist, 2007
- SDSU Faculty Search Student Representative – Ecotoxicologist, 2006
- WSN Secretariat Student Volunteer, 2005 – 2008

REFERENCES

Dr. Edwin (Ted) Grosholz

Department of Environmental Science and Policy, University of California, Davis
One Shields Avenue, Davis, CA 95616
Email: tedgrosholz@ucdavis.edu Phone: (530) 752-9151

Dr. Greg Ruiz

Smithsonian Environmental Research Center
647 Contees Wharf Road, Edgewater, MD 21037
Email: ruizg@si.edu Phone: (443) 482-2227

Dr. Eric Sanford

Bodega Marine Lab, University of California, Davis
2099 Westside Road, Bodega Bay, CA 94923
Email: edsanford@ucdavis.edu Phone: (707) 875-2040