CURRICULUM VITAE: EMILY CARRINGTON

(formerly Emily Carrington Bell, 1991-1999)

CONTACT INFORMATION

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1. EDUCATION

1992 Ph.D., Stanford University, Stanford, CA. Advisor: Dr. Mark W. Denny.
1985 B.A., Cornell University, Ithaca, NY. Major: Biological Sciences.

2. EMPLOYMENT

2010-present	Professor of Biology, University of Washington Department of Biology and Friday Harbor Laboratories (FHL)
2016-2019	Program Director, Physiological Mechanisms and Biomechanics Program, Division of Integrative Organismal Systems, Directorate for Biological Sciences, National Science Foundation, Alexandria, VA (on leave from UW)
2012-2014	Director, Ocean Acidification Environmental Laboratory, Friday Harbor Laboratories, University of Washington
2013	Visiting Professor, Università degli Studi di Palermo, Italy (sabbatical leave)
2005-2010	Associate Professor of Biology, University of Washington Department of Biology and Friday Harbor Laboratories (FHL)
2004-2005	Visiting Scientist, Harvard University (sabbatical leave)
2003-2005	Associate Professor of Biological Sciences, University of Rhode Island
1996-2003	Assistant Professor of Biological Sciences, University of Rhode Island
1995-1996	Postdoctoral Researcher, Hopkins Marine Station, Stanford University
1992-1995	Killam Postdoctoral Fellow, Dept. of Zoology, Univ. of British Columbia Advisor: Dr. John M. Gosline.

3. AWARDS, HONORS and FELLOWSHIPS

2020-present, Turn Point Faculty Fellow, Friday Harbor Laboratories, University of Washington
2017, John Gosline Memorial Lecturer, University of British Columbia.
1992-1994, Izaak Walton Killam Postdoctoral Fellowship, University of British Columbia.
1991-1992, Genentech Foundation for Biomedical Sciences Scholar, Achievement Rewards for College Scientists (ARCS).
1986-1991, Achievement Rewards for College Scientists (ARCS) Scholar.

4. PROGRAM MANAGEMENT EXPERIENCE

- 3+ years of experience as a Program Director at the National Science Foundation
- Extensive planning and management of externally reviewed proposal driven program (annual budget ~$20M).
- Effective stewardship of program investments
- Constructive coordination with other elements of the agency; liaison to other agencies, the scientific community and the public
- Fostered diversity and inclusion within the agency and the broader scientific community

5. RESEARCH PROJECTS, GRANTS, CONTRACTS (since 1996, includes UW and URI)

Carrington, E., L. Buckley, A. Rico-Guevarra, J. Riffel, submitted Feb 2020. *BII Implementation: OxE LEVER: Using Organism-Environment Interactions for Linking Environmental Variability to Ecological Responses.* National Science Foundation, $12,498,642 direct + indirect costs.

Carrington, E. 2019-2020. *Combined effects of ocean acidification and hypoxia on mussel attachment.* Bridge Funding Program, University of Washington Office of Research, $98,200 direct costs.

Carrington, E. 2015-2016. *Flow Cytometry for Student Research at Friday Harbor Laboratories*. University of Washington Student Technology Fee Committee, $64,856 direct costs.

Carrington, E. 2015-2016. *Mussel adhesion in a high CO_2 world: uncovering the molecular basis of weak attachment.* University of Washington Royalty Research Foundation, $37,029 direct costs.

Sebens, K, **E. Carrington**, A. Gagnon, D. Grunbaum, B Swalla. 2014-2018. *FSML: Instrumentation at UW Friday Harbor Laboratories for Studies of the Biological Impacts of Ocean Acidification and Ocean Change*. National Science Foundation #1418875, Biological Infrastructure, $350,000 direct + indirect costs. I was co-PI on this project until 2016, when I resigned to avoid conflicts of interest with my employment as a rotating Program Director at NSF.

Carrington, E. and C. Friedman, 2014-2018 (with NCE). *Impacts of ocean acidification on wild and farmed mussels in Puget Sound, WA*. Washington Sea Grant, $257,700 direct + indirect costs. I was PI on this project; Dr. Carolyn Friedman was co-PI.

Marcotte, I., R. Tremblay, C. Pellerin and L. Sleno, 2011-2014. *Determination of the molecular organization responsible for the mechanical properties of mussels' byssus - a high-performance fiber*. Fonds Quebecois de la Recherche sur la Nature et les Technologies (FQRNT) - Team program, Canada, $177,000. I was listed as a collaborator and advised and assisted in the mussel byssus strength analyses.

Carrington E. 2010-2016 (with NCE). *Ocean Acidification-Category 1: Effects of ocean acidification on coastal organisms: an ecomaterials perspective.* National Science Foundation #1041213, Emerging Frontiers, $896,182 direct + indirect costs. I was the PI on this project; Michael O'Donnell and Patrick Martone were key senior personnel (co-investigators).

Summers, A. and **E. Carrington**, 2010-2012. *FSML: A multipurpose seawater flume.* National Science Foundation #1035684, Biological Infrastructure, $192,841 direct + indirect costs. I

was co-PI on this project.

Summers, A. and **E. Carrington**, 2010-2014. *REU Site: Integrative Biology and Ecology of Marine Organisms.* National Science Foundation #1004193, Biological Infrastructure, $316,000 direct + indirect costs. Due to several other commitments, I withdrew as Co-PI in summer 2011.

Carrington, E. 2008-2013. *The effects of temperature on ecological processes in a rocky intertidal community: a mechanistic approach.* National Science Foundation #0824903 Biological Oceanography, $542,658 direct + indirect costs. I was the sole PI on this project; Dr. Sarah Gilman was key senior personnel (co-investigator).

Marcotte, I., R. Tremblay, C. Pellerin, B. Myrand, R. Roy, E. Kraffe, and **E. Carrington**. 2009-2012. *Impact of environmental variations on the structure of the byssus of the blue mussel: a potential biomaterial*. NSERC (aquaculture program), $340,700 (CAD). This project was based at the University Quebec at Montreal; I was one of seven collaborators including government and industry partners. My role was to advise and assist in the mussel byssus strength analyses.

Carrington, E. and S. Wyllie-Echeverria. 2006-2007. *Growth and metabolic rate measurement of adult and seedling leaves*. Task #5 of Amendment #1 to Interagency Agreement No. 06-53. UW/State of Washington Department of Natural Resources, approx. $9,000. I supervised an undergraduate student's study of the ecophysiology of local seagrass populations.

Wilga, C, G. Forrester and **E. Carrington**. 2003-2006. *A water flume for studies of organismal interactions in flowing water.* National Science Foundation #0301868, Biological Infrastructure, $72,986 direct + indirect costs. I was co-PI on this project.

Carrington, E. 2000-2004. *Incorporating structural response into the prediction of disturbance of a competitive dominant on wave-swept rocky shores*. National Science Foundation #0082605, Biological Oceanography, $326,944, direct + indirect costs. I was sole PI on this project.

Carrington, E. 1998-1999. *RPGW:Incorporating structural response into the prediction of disturbance of a competitive dominant on wave-swept rocky shores*. National Science Foundation #9711893, Biological Oceanography, $6,944, direct + indirect costs. I was sole PI on this research planning grant.

6. SYMPOSIA, WORKSHOPS AND WORKING GROUPS (invited, since 2005)

A. Symposia

Biomechanics and Climate Change: a symposium at the annual meeting of the Society of Experimental Biologists, Florence, Italy July 3-6, 2018. Title: "Only as strong as the weakest link: ocean warming and acidification compromise the material properties of coastal organisms". Invited speaker.

Bioadhesion: Natural and Biomimetic Adhesives, a session at the 19th International Congress on Marine Corrosion and Fouling (ICMCF), Melbourne, Florida, June 24-29, 2018. Title: "Local environmental conditions affect the adhesive strength of benthic marine organisms". Keynote speaker (invited).

Robert T Paine Memorium, a symposium at the Benthic Ecology Meeting, Myrtle Beach SC, April 12-16, 2017. Title: "It's the economy, stupid! Putting a price on increased mussel mortality in

changing oceans." Invited speaker.

How Ocean Acidification and Ocean Warming Could Influence the Functional Morphology and Ecology of Intertidal Organisms, a symposium in the 2016 AAAS Pacific Division Annual Meeting, San Diego, CA, June 14-17, 2016. Title: "Hanging on by a Thread? Mussel Attachment in a Warmer, Higher CO_2 World." Invited speaker.

Mollusks in Peril, a forum hosted by the Bailey-Matthews National Shell Museum on Sanibel Island, May 22-24, 2016. Title: "Hanging on by a Thread? Mussel Attachment in a Warmer, Higher CO_2 World." Invited speaker.

Effects of Ocean Acidification in Wild and Cultured Marine Fauna, a symposium for the 145th Annual Meeting of the American Fisheries Society in Portland OR, 16-20 August, 2015. Title: "Ecomechanics of Wild and Farmed Mussels in a Warmer, Acidified Ocean" Invited speaker.

Shellfish and the Environment Research Symposium, St. Martin's University, Lacey WA, Dec 8, 2014. "Effects of Ocean Acidification on Shellfish". Invited speaker.

Marine Bioadhesion, a session at the 17th International Congress on Marine Corrosion & Fouling (ICMCF), National University of Singapore, July 6-10, 2014. Title: "Mussel adhesion in a warmer, high-CO_2 world: an ecomaterial approach". Keynote Speaker (invited).

Climate Change and Molluscan Ecophysiology, a symposium at the World Congress of Malacology in Ponta Delgada, Azores July 21-28, 2013. Title: "Open air dining: circatidal foraging patterns of the intertidal whelk *Nucella ostrina* in a complex thermal landscape." Invited speaker.

Translation of Mussel Adhesion to Beneficial New Concepts and Materials, a symposium for the 2013 AAAS Annual Meeting, 14-18 February in Boston MA. Title: "Mussel Attachment in Changing Climates: An Ecomaterial Approach". Invited speaker.

A celebration of the career of JM Gosline, University of British Columbia, Department of Zoology, December 2008. Invited speaker.

Going with the Flow, symposium at the annual meeting of the Society for Integrative & Comparative Biology, January 2008. Invited speaker.

Metabolic Theory of Ecology, Gordon Research Conference, Bates College, ME, July 2006. Invited speaker.

B. Working Groups and Workshops (Invited Participant)

Rules of Life: Linking Biomechanics and the Evolutionary Ecology of Complex Phenotypes, a working group funded by the National Science Foundation. Portland, OR, March 16-19, 2019.

Marine Energy Technologies Forum: Distributed and Alternate Applications, hosted by the U.S. Department of Energy's (DOE's) Water Power Technologies Office (WPTO) Washington, DC December 5-7, 2018.

Shellfish Growers & Marine Managers Workshop Ocean Acidification—Recent Trends Affecting Northwest Shellfish Growers, Friday Harbor WA Sept 10, 2014. San Juan Marine Resources Committee.

Future proofing New Zealand's shellfish aquaculture: Monitoring and adaptation to ocean acidification. Rutherford Hotel, Nelson, NZ. December 3-4, 2013. Invited speaker.

Ocean Acidification Principal Investigators' Workshop (OAPI), National Science Foundation Division of Ocean Sciences and the Ocean Carbon and Biogeochemistry Program, Gallaudet University, Washington DC, September 2013.

Ocean Acidification Communication Workshop. COMPASS (www.COMPASSonline.org) Gallaudet University, Washington DC, September 2013.

World University Network (WUN) Workshop on Ocean Acidification, Friday Harbor Laboratories

Aug 28-Sept 2, 2011.

Sensor Development for the Study of Global Climate Change in Intertidal Ecosystems University of South Carolina, Columbia SC, June 3-11, 2011.

Minority Affairs Committee Working Group, American Society of Cell Biologists, Bethesda, MD, March 29, 2011.

Ocean Acidification Principal Investigators' Workshop (OAPI), National Science Foundation Division of Ocean Sciences and the Ocean Carbon and Biogeochemistry Program, Woods Hole, MA, March 22-24, 2011.

Ocean Global Change and Evolution Workshop, National Science Foundation, Catalina Island, CA, May 7-9 2010.

Puget Sound Ocean Acidification Workshop, University of Washington, Seattle WA, March 30-31, 2010.

Ecomechanics: A Mechanistic Approach to Predictive Ecology, Friday Harbor, WA, September 2009. Invited participant. I also served as local host for the international group of 26 faculty.

CORONA (Coordinating Research on the North Atlantic). A Research Coordination Network to study the historical ecology of the Trans-Atlantic biota. Roscoff, France, July, 2005.

7. INVITED RESEARCH SEMINARS (since 2005, off campus only)

- National Science Foundation, Ocean Sciences. December 2019.
- Clark University, Worcester MA. October 2018.
- Naval Undersea Warfare Center, Newport RI. October 2018.
- NECAN (Northeast Coastal Acidification Network) Industry Webinar Series. October 2018.
- University of South Carolina, Columbia SC. March 2018.
- University of British Columbia, Vancouver, Canada. November 2017 (John Gosline Memorial Lecturer).
- University of California, Davis (Bodega Marine Lab) July 2017.
- University of California, Santa Barbara, May 2017.
- McDaniel College, Westminster MD, April 2017 (Keynote speaker for UG Research Symposium).
- University of Maine, Orono ME, December 2016.
- Virginia Institute for Marine Science, Glouster VA, November 2016.
- University of Rhode Island, Kingston RI, October 2015.
- Institute of Systems Biology, Seattle WA, June 2015.
- Dauphin Island Sea Labs, Dauphin Island AL, April 2015.
- Romberg Tiburon Center, San Francisco State University, November 2013.
- Monterey Bay Aquarium Research Institute, June 2013.
- Swarthmore College, Department of Biology, November 2012.
- NOAA/NMFS Monster Jam Seattle WA November 2012.
- Bowdoin College, Department of Biology, April 2012.
- University of Alberta, Department of Ecology and Evolution, April 2011.
- University of British Columbia, Department of Zoology, December 2008.
- Shannon Point Marine Laboratory, Western Washington University, May 2008.
- University of California, Los Angeles, Dept. of Ecology and Evolutionary Biology, May 2008
- Western Washington University, Biology Department, November 2007.

- University of California, Santa Barbara, Marine Science Institute, March 2007.
- Stanford University, Hopkins Marine Station, February 2007.
- Osaka University, Graduate School of Engineering (visiting group at FHL), August 2006.

8. CONTRIBUTED PAPERS

In addition to the symposium presentations listed above, I have contributed over 70 papers to various scientific meetings since 2005. A similar number of papers were presented annually when I was on the faculty at the University of Rhode Island. These papers generally have one or more graduate, undergraduate or high school student or post-doctoral scholar as lead or co-author. The most common venues were annual meetings of international and national scientific societies, such as the Association for the Sciences of Limnology and Oceanography (ASLO), Society for Integrative and Comparative Biology (SICB), Western Society of Naturalists (WSN), Benthic Ecology Meetings (BEM), National Shellfish Association (NSA), Phycological Society of America (PSA), and Society for Experimental Biology (SEB). Papers were also contributed to regional meetings, such as the Pacific Coast Shellfish Growers Association (PCSGA), NorthWest Algal Symposium (NWAS) and Salish Sea Ecosystem Conference (SSEC).

9. SOCIETY MEMBERSHIPS: American Association for the Advancement of Science, American Society of Limnology and Oceanography, Sigma Xi (UW Chapter), Society for Integrative and Comparative Biology, Western Society of Naturalists.

10. TEACHING & ADVISING OVERVIEW

A. Teaching Assignments (since 2005, at UW Seattle or FHL): Biol 100B Marine Biology of the San Juan Islands, FHL 250 Marine Biology (cross-listed with Biol FSH & OCN), Biol 356 Foundations in Ecology, 423 Marine Physiological Ecology, Biol 423 Marine Ecological Processes, Biol 445 Marine Botany, Biol 479 Research in Marine Biology, Biol 533B Biomechanics, Biol 560 Ecoseminar.

B. Graduate Advisor

University of Washington:

- Lyda Harris, Ph.D. candidate (degree in 2020 expected). Marine microplastic pollution: An interdisciplinary approach to understanding the effects on organisms, ecosystems and policy.
- Jaquan Horton, Ph.D. 2020. Mechanical properties of alimentary tissues in teleostean fishes.
- Emily (Molly) Roberts, Ph.D. 2019. Energetic limitation of byssus production for mussels in dynamic coastal environments. Currently a post-doctoral researcher at Claremont Colleges, CA.
- Matthew George, Ph.D. 2018. Mussel attachment in a dynamic ocean: an ecomechanical perspective. Currently a postdoctoral researcher at Children's Hospital of Philadelphia, PA.
- Hilary Hayford, Ph.D. 2016. Tidal migration patterns moderate thermal risk in the intertidal snail *Nucella ostrina*. Currently senior program manager at Puget Sound Restoration Fund, Bainbridge Island WA.

- Laura Newcomb, Ph.D. 2015. Elevated temperature and ocean acidification alter mechanics of mussel attachment. Currently a Program Analyst at NOAA in Silver Spring, MD.
- Michael Nishizaki, Ph.D. 2013. Physiological and behavioral responses to temperature and flow in the barnacle *Balanus glandula* Darwin (1854). Currently an Assistant Professor, Carleton College in Northfield MN.

University of Rhode Island:

- James Dimond, M.S. 2006. Temporal and spatial dynamics of symbiosis in the temperate coral, *Astrangia poculata*. Currently a doctoral student in UW SAFS and a research technician at Shannon Point Marine Lab in Anacortes, WA.
- Michael Boller, Ph.D. 2005. Hydrodynamics of marine macroalgae: Biotic and physical determinants of drag. Currently an associate professor at St. John Fisher College, Rochester, NY.
- Gretchen Moeser, M.S. 2004. Influence of physical and biological factors on byssal thread production and mechanics in the blue mussel, *Mytilus edulis*. Currently an Environment Planning Officer at Environment Agency, Leicester, England.
- Sean Grace, Ph.D. 2004. Ecomorphology of the temperate scleractinian *Astrangia poculata*: Coral-macroalgal interactions in Narragansett Bay. Currently an Associate Professor and Chair of Biology, Southern Connecticut State University, New Haven, CT.
- Shanna Brazee, M.S. 2004. Comparative biomechanics of mussel byssal threads. Owner, Rome Point Café, North Kingstown RI.
- Kerri Hayden, M.S. 1999. Effects of flow and crowding on feeding morphology of acorn barnacles. Currently Adjunct Faculty/Lab Director, Stonehill College, Easton MA.

C. Post-Doctoral Advisor (UW only, includes mentoring UW FHL-funded postdocs)
- Dr. Hilary Hayford (2016-2019), currently a Program Manager at Puget Sound Restoration Fund, Seattle, WA.
- Dr. Michael O'Donnell (2008-2013), currently Executive Director of Master of Translational Medicine Program for UC Berkeley-UCSF.
- Dr. Dawn Vaughn (2011-12), currently Biology Faculty at Santa Monica Community College, Santa Monica, CA.
- Dr. Chris Neufeld (2011-12), currently Associate Director, Education at Bamfield Marine Science Center, British Columbia, Canada.
- Dr. Sarah Gilman (2006-2009), currently Associate Professor, Claremont Colleges, CA.

D. Undergraduate Research Advisor. I typically mentor 3-9 undergraduate students in research projects each year. Several of these students have gone on to graduate programs (M.S., Ph.D.) and have also been authors on publications (see Bibliography at end of document).

E. Broadening Participation in Marine Sciences. I am committed to enhancing diversity and inclusion in the marine and biological sciences and have actively recruited students from underrepresented groups to work in my laboratory. Several of these students were summer undergraduate research interns in the FHL Blinks/REU Research Fellowship Program and their work led to co-authorship on several publications. I was co-PI of the first NSF REU grant to FHL that supported these students. I have served on the UW Faculty Advisory Committee to the Pacific Northwest Alliance of LSAMP (the Louis Stokes Alliance for Minority Participation Program; 2009-2012) and to FHL's Blinks Research Fellowship Program (2006-2011). As a

Program Director at NSF, I actively worked with the Office of Diversity and Inclusion to promote NSF's new harassment policies within the agency and to the outside scientific community. I have continued these efforts upon returning to UW by serving on working groups led by the Office of Research and on the Department of Biology's Diversity and Equity Committee.

11. SERVICE OVERVIEW (since 2005)

A. Service to the University of Washington:
- College Council, College of Arts & Sciences 2020-2024. Elected member of advisory committee to the Dean.
- Departmental level committees in Biology (curriculum, faculty appointments, diversity, equity and inclusion) and Friday Harbor Laboratories (Executive Committee, Ocean Acidification Environmental Laboratory, Illg Endowed Lectureship).
- University level committees (Marine Biology, LSAMP). More details are available upon request.

B. Service to the Scientific Community
- *Program Director at the National Science Foundation* in the Division of Integrative Organismal Systems in the Directorate for Biological Sciences. I served as a for three years, from January 2016 to February 2019. My primary duties were to manage proposals in the Physiological Mechanisms and Biomechanics Program.
- *Interagency Working Group for Aquaculture* (IWG-A; 2017-2018). I represented the National Science Foundation as a member of this federal oversight committee.
- *Editor:* Associate Editor, *Functional Ecology* 2015-present; Associate Editor, *Marine Ecology Progress Series* 2016-present; member of Editorial Board, *Invertebrate Biology* 2010-present.
- *Environmental Data*. I routinely share environmental data I collect in my research and value the importance of sharing this information. In 2005 my lab launched a weather station and these data are publicly accessible in real-time (http://depts.washington.edu/fhl/fhl_wx.html), and as an asset at NANOOS (www.nanoos.org). Many students and researchers from FHL have incorporated these data into their research projects and the website is also regularly accessed by the public, especially local mariners and aviators. Over ten years of data (2006-2017) are archived at bco-dmo.org: https://www.bco-dmo.org/dataset/491262/data.
- *Society for Integrative and Comparative Biology*. I have served this national scientific society in several capacities: Development Committee, 2011-2014 (Chair 2011-2013); Gans Award Selection Committee, Chair, 2011-13; Skinner Award Selection Committee, Chair, 2009-11; Program Officer (elected), Division of Ecology and Evolution. 2002-2005.
- *Proposal reviewer: Panelist*: National Science Foundation GEO/BioOc and BIO/IOS. *Adhoc review:* National Science Foundation, National Oceanic and Atmospheric Association. Marsden Foundation (New Zealand),
- *Reviewer (Journal articles, books)*: Biological Bulletin, Coral Reefs, Conservation Physiology, Ecology, Journal of Experimental Biology, Journal of Experimental Marine Biology and Ecology, Journal of Marine Science and Engineering, Journal of Materials Science, Journal of Phycology, Limnology and Oceanography, Marine Biology, Marine Ecology, Marine Ecology Progress Series, Marine Environmental Research, Princeton University Press, Nature, Nature Climate Change, Proceedings of the Royal Society,

Science, Soft Matter, California's 4th Climate Change Assessment

- *External Committee member*: Laura Elsberry (M.S. CSU Fullerton), Nicholas Colvard (Ph.D. Northeastern University), Rebecca Guenther (Ph.D. UBC) and *External Reviewer* (Ph.D. thesis)*:* James Cook University, University of Alberta, Tel Aviv University.

C. Service to the General Community (Outreach)

- *K-12 Outreach/Service Learning* (2009-present). In collaboration with FHL's K-12 Science Outreach Program and San Juan Island Public Schools, I engage my undergraduate students at FHL in service learning. The activity is extremely popular with all participants; teachers appreciate the added expert help, grade school students make connections with college scientists, and the FHL students reinforce their own learning experience by teaching science to others. Several of these students have gone on in careers in science education.
- *Service to Shellfish Industry.* I actively collaborate with three shellfish growers and routinely consult with others. I attend county, regional, national and international meetings with aquaculture growers and managers, sharing data about environmental effects on wild and farmed mussels.
- *President, San Juan Public School Foundation,* 2015-2016. Locally, I served on the Board of the Directors of the San Juan Public School Foundation from 2008-2016. The role of the SJPSF is to raise funds to support academic excellence in our rural public school district. I was especially active in securing funding for STEM programs, including the NOSB and First MATE ROV competitions.
- *Science and Policy Panelist, National Ocean Science Bowl.* I served as an expert reviewer of written and oral presentations by high school team competition in the national competition in Seattle WA (May, 2014). The theme that year was ocean acidification.
- *Advising Policymakers.* I gave Governor Jay Inslee a tour of our research site at Penn Cove Shellfish on March 2015. He later tweeted about the mussel farm and they challenges they face with changing climates https://twitter.com/GovInslee/status/580420810323673089, https://twitter.com/GovInslee/status/580418466429198336.
- *FHL Open House*. One Saturday each spring, Friday Harbor Laboratories opens its doors to the public, showcasing our science research and educational activities to over 600 people. I am active participant in this event, developing displays of my research and undergraduate courses.

BIBLIOGRAPHY: EMILY CARRINGTON

In each of the citations listed below, the principle author is listed first. My name is bolded and the names of student authors are followed by asterisks (* = graduate student, ** = undergraduate student).

Higham, T. et al., in prep. Bending the paradigm: Leveraging biomechanical models and functional traits to investigate the rules of life. *Trends in Ecology and Evolution.*

Newcomb, L.A.*, Cannistra, T. and E. Carrington, in prep. The attachment strength of congener mussels responds in opposite directions to warming. *Marine Ecology Progress Series*.

In review/revision:

Harris, L.*, G. Harsimran** and E. Carrington, in review. Impacts of microplastic on the benthic-pelagic coupling role of marine mussels. *Marine Pollution Bulletin.*

Horton, J.*, E. Carrington and J.M. Gosline. Tough and stretchy: Mechanical properties of the alimentary tract in a fish without a stomach. *Integrative and Comparative Biology*, in review.

Sansoucy, M., R. Tremblay, J. Babarro, E. Carrington, L. Sleno. Comparative proteomic investigation of foot and mantle tissues in Mytilidae mussels by 2D-LC-HRMS/MS. *Proteomics*, in revision.

Roberts, E.A*. and E. Carrington. Attachment and energetic state: Byssal thread production and growth are not correlated across a temperature and food gradient for two congeneric mussel species. *Marine Ecology Progress Series*, in revision.

Published articles (including those accepted or in press):

George, M.N.*, J. Andino**, **E. Carrington**, 2019. Microscale pH and dissolved oxygen excursions within mussel raft aggregations: implications for byssal thread adhesion and mussel attachment. *J. Shellfish Res*. 38(3):795-809, doi:10.2983/035.038.0329.

Harris, L.* and **E. Carrington**, 2019. Impacts of microplastic versus natural abiotic particles on the filter feeding of a marine mussel. *Limnology & Oceanography Letters,* doi: 10.1002/lol2.10120.

Newcomb L.A.*, M.N George, M.J. O'Donnell, and **E. Carrington**, 2019. Only as strong as the weakest link: combined effects of temperature and pCO2 on mussel attachment. *Conservation Physiology*, 7(1): coz068, doi: 10.1093/conphys/coz068.

George, M.N.*, B. Pedigo**, **E. Carrington**, 2018. Hypoxia weakens mussel attachment by interrupting DOPA cross-linking during adhesive plaque curing. *J. Royal Society, Interface*, doi: 10.1098/rsif.2018.0489

George, MN and **E. Carrington**, 2018. Environmental post-processing increases the adhesion strength of mussel byssus adhesive. *Biofouling* 34:4, 388-397, doi:10.1080/08927014.2018.1453927

Sebens, KP, G Sarà, and **E. Carrington**, 2018. Estimation of fitness from energetics and life-history data: an example using mussels. *Ecology and Evolution*, doi: 10.1002/ece3.4004

Hayford, HA*, M. O'Donnell and **E. Carrington**, 2018. Radio tracking detects thermoregulation at a snail's pace. *J. Exp. Mar. Biol. Ecol.* 499:17-25. doi:10.1016/j.jembe.2017.12.005.

Guenther*, R.J., K. Miklasz, **E. Carrington** and P. Martone, 2017. Macroalgal spore dysfunction: ocean acidification delays and weakens adhesion. *J. Phycology*. doi:10.1111/jpy.12614.

Bouhlel, Z, B. Genard, N. Ibrahim, **E. Carrington**, JMF Babarro, A Lok, A.A.V. Flores, C.Pellerin, R. Tremblay and I. Marcotte, 2017. Interspecies comparison of the mechanical properties and biochemical composition of byssal threads. *J. Exp. Biol.*, doi: 10.1242/jeb.141440.

Stickle, W.B., **E. Carrington** and H. Hayford, 2017. Seasonal changes in the thermal regime and gastropod tolerance to temperature and desiccation stress in the rocky intertidal zone. *J. Exp. Ecol. Mar. Biol.* 488:83–91.

Helmuth, B, F Choi, A Matzelle…**E. Carrington** et al. (with 48 authors), 2016. Long-term, high frequency *in situ* measurements of intertidal mussel bed temperatures using biomimetic sensors. *Scientific Data*, doi:10.1038/sdata.2016.87.

Bashevkin, S**. D. Lee**, P. Driver**, **E. Carrington** and S.B. George, 2016. Low salinity affects the vertical distribution of *Pisaster ochraceus* (Echinodermata: asteroidea) larvae in haloclines: implications for life in the plankton. *Mar. Ecol. Prog. Ser.*542:123-140.

Krumhansl, K.A., K.W. Demes*, **E. Carrington** and C.D.G. Harley, 2015. Divergent growth strategies in red algae vs. kelps influence biomechanical properties. *Am. J. Bot.* doi: 10.3732/ajb.1500289.

Newcomb, L*. J. Hall-Spencer, M. Milazzo and **E. Carrington**, 2015. Ocean acidification bends the mermaid's wineglass. *Biology Letters*. doi:10.1098/rsbl.2014.1075.

Gilman, S. H. Hayford*, C. Craig and **E. Carrington**, 2015. Body temperatures of an intertidal barnacle and two whelk predators in relation to shore height, solar aspect and microhabitat. *Mar. Ecol. Prog. Ser.* 536: 77–88, 2015 doi: 10.3354/meps11418.

Nishizaki, M.T.* and **E. Carrington,** 2015. The effect of water temperature and velocity on barnacle growth: quantifying the impact of multiple environmental stressors. *J. Thermal Biology* doi:10.1016/j.jtherbio.2015.02.002.

Murray, J.W., E. Roberts*, E. Howard, M. O'Donnell, C. Bantam, **E. Carrington,** M. Foy, B. Paul, A. Fay, 2015. An inland sea high nitrate-low chlorophyll (HNLC) region with naturally high pCO_2. *Limnol. Oceanogr.*, doi: 10.1002/lno.10062.

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