

RACHAEL E. BLAKE

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Education

2012 Ph.D. Marine Science, *College of William & Mary* Gloucester Point, VA
2001 B.A. Environmental Studies, *Oberlin College* Oberlin, OH

Professional Positions

8/2022 – present *Director of Data Science*, Intertidal Agency, Oakland, CA
Lead technical development of solutions to ocean data challenges

4/2022 – present *Data Science Program Lead Consultant*, DataKind, New York, NY
Technical management of seven economic resilience projects

5/2017 – present *Data Analyst & Consultant*, University of Washington, Seattle, WA
Analysis of ecological data from the Gulf of Alaska

2/2020 – 2/2022 *Assistant Director of Data Science*, University of Maryland, Annapolis, MD
Leading data science and cyberinfrastructure team in supporting interdisciplinary research at the National Socio-Environmental Synthesis Center (SESYNC)

8/2019 – 2/2020 *Acting Data Science Team Lead*, University of Maryland, Annapolis, MD
Managing team supporting interdisciplinary research with data science tools at SESYNC

10/2018 – 8/2019 *Data Scientist*, University of Maryland, Annapolis, MD
Supporting synthesis research with open data science tools and methods at SESYNC

1/2017 – 4/2017 *Education and Outreach Coordinator*, NSF Arctic Data Center, Santa Barbara, CA
Conducted outreach and planned training activities

2015 – 2017 *Post-doctoral Associate*, Univ. of California Santa Barbara, Santa Barbara, CA
Synthesis of long-term ecological data from the Gulf of Alaska

2012 – 2015 *Post-doctoral Researcher*, Louisiana State University, Baton Rouge, LA
Conducting research examining effects of multiple stressors in saltmarshes

2004 – 2011 *Ph.D. Student*, Virginia Institute of Marine Science, Gloucester Point, VA
Dissertation Title: *Effects of Anthropogenic Stressors and Changes in Biodiversity on Lower Chesapeake Bay, VA USA Seagrass Systems*

2001 – 2004 *Post-graduate Researcher*, University of California Davis, Davis, CA
Investigated impact of a *Spartina* hybrid invasion on saltmarsh invertebrates

1999 – 2000 *Aquatic Invertebrate Researcher*, The Nature Conservancy, Sheffield, MA
Examined and monitored *Dreissena polymorpha* invasion in a lake system

Software Packages

Blake, R.E., R. Turner. 2021. insectcleanr: code for cleaning insect data (0.1). Zenodo. DOI: <https://doi.org/10.5281/zenodo.4555787>

Shannon, J, **R.E. Blake**, T. Whiteaker. ingestR: An R package for reading environmental data from raw formats into dataframes. <https://github.com/jpshanno/ingestr>

Marchand, P, I. Carroll, M. Smorul, **R.E. Blake**, Q. Read. rslurm: submit R code to a Slurm cluster. <http://sesync-ci.github.io/rslurm> Artist: S. Cho.

Publications

Halpern, B. et al. (including **R.E. Blake**). *In Review*. Priorities for synthesis in ecology and environmental science. *Frontiers in Ecology and the Environment*.

Blake, R.E., J. Olin. 2022. Effects of multiple stressors were mixed in an experimental plant-herbivore system. *Marine Environmental Research*. <https://doi.org/10.1016/j.marenvres.2022.105644>

Mally, R., R.M. Turner, **R.E. Blake**, G. Fenn-Moltu, C. Bertelsmeier, E.G. Brockerhoff, R.J.B. Hoare, H.F. Nahrung, A. Roques, D.S. Pureswaran, T. Yamanaka, A.M. Liebhold. 2022. Moths and butterflies on alien shores – global biogeography of non-native Lepidoptera. *Journal of Biogeography*. <http://doi.org/10.1111/jbi.14393>

Nagy, R. C., et al. (including **R.E. Blake**). 2021. Harnessing the NEON Data Revolution to Advance Open Environmental Science with a Diverse and Data-Capable Community. *Ecosphere*. <http://doi.org/10.1002/ecs2.3833>

Kitzes, J., **R.E. Blake**, S. Bombaci, M. Chapman, S. M. Duran, T. Huang, M. B. Joseph, S. Lapp, S. Marconi, W.K. Oestreich, T.A. Rhinehart, A.K. Schweiger, Y. Song, T. Surasinghe, D. Yang, K. Yule. 2021. Expanding NEON biodiversity surveys with new instrumentation and machine learning approaches. *Ecosphere*. <https://doi.org/10.1002/ecs2.3795>

Liebhold, A.M., R.M. Turner, **R.E. Blake**, C. Bertelsmeier, E.G. Brockerhoff, H.F. Nahrung, D.S. Pureswaran, A. Roques, H. Seebens, T. Yamanaka. 2021. Invasion disharmony in the global biogeography of native and non-native beetle species. *Diversity and Distributions* 27:11:2050-2062. <https://doi.org/10.1111/ddi.13381>

Turner, R.M., E.G. Brockerhoff, C. Bertelsmeier, **R.E. Blake**, B. Caton, A. James, A. MacLeod, H.F. Nahrung, S.M. Pawson, M.J. Plank, D.S. Pureswaran, H. Seebens, T. Yamanaka, A.M. Liebhold. 2021. Worldwide border interceptions provide a window into human-mediated global insect movement. *Ecological Applications*. 31:7 <https://doi.org/10.1002/eap.2412>

Ordway, E.M., A.J. Elmore, S. Kolstoe, J.E. Quinn, R. Swanwick, M. Cattau, D. Taillie, S.M. Guinn, K.D. Chadwick, J.W. Atkins, **R.E. Blake**, M. Chapman, K. Cobourn, T. Goulden, M.R. Helmus, K. Hondula, C. Hritz, J. Jensen, J.P. Julian, Y. Kuwayama, V. Lulla, D. O’Leary, D. R. Nelson, J.P. Ocon, S. Pau, G.E. Ponce-Campos, C. Portillo-Quintero, N.G. Pricope, R.G. Rivero, L. Schneider, M. Steele, M.G. Tulbure, M.A. Williamson, C. Wilson. 2021. Leveraging the NEON Airborne Observation Platform for socio-environmental systems research. *Ecosphere*. 12:6 <https://doi.org/10.1002/ecs2.3640>

Blake, R.E., C.L. Ward, M.E. Hunsicker, A.O. Shelton, A.B. Hollowed. 2019. Spatial community structure of groundfish is conserved across the Gulf of Alaska. *Marine Ecology Progress Series*. 626:145-160. <https://doi.org/10.3354/meps13050>

Couture, J. L., **R. E. Blake**, G. McDonald, C. Ward. 2018. A funder-imposed data publication requirement seldom inspired data sharing. *PLOS ONE*. <https://doi.org/10.1371/journal.pone.0199789>

Shelton, A. O., M. E. Hunsicker, E. J. Ward, B. E. Feist, **R. E. Blake**, C. L. Ward, B. Williams, J. T. Duffy-Anderson, A. B. Hollowed, A. C. Haynie. 2017. Spatio-temporal models reveal subtle changes to

demersal communities following the Exxon Valdez oil spill. ICES Journal of Marine Science. <https://doi.org/10.1093/icesjms/fsx079>

Zador, S. G. , S. K. Gaichas, S. Kasperski, C. L. Ward, **R. E. Blake**, N.C. Ban, A. Himes-Cornell, Z. Koehn. 2017. Linking ecosystem processes to communities of practice through commercially fished species in the Gulf of Alaska. ICES Journal of Marine Science fsx054. <https://doi.org/10.1093/icesjms/fsx054>

Blake, R.E., J.E. Duffy. 2016. Influence of environmental stressors and grazer immigration on ecosystem properties of an experimental eelgrass community. Journal of Experimental Marine Biology & Ecology. 480: 45-53. <https://doi.org/10.1016/j.jembe.2016.03.007>

Blake, R.E., J.E. Duffy, J. Paul Richardson. 2014. Patterns of seagrass community response to local shoreline development. Estuaries & Coasts. 37: 1549-1561. <https://doi.org/10.1007/s12237-014-9784-7>

Blake, R.E., J.E. Duffy. 2012. Changes in biodiversity and environmental stressors influence community structure of an experimental eelgrass (*Zostera marina*) system. Marine Ecology Progress Series. 470, 41-54. <https://doi.org/10.3354/meps10006>

Blake, R.E., J.E. Duffy. 2010. Grazer diversity affects resistance to multiple stressors in an experimental seagrass ecosystem. Oikos. 119, 1625-1635. <https://doi.org/10.1111/j.1600-0706.2010.18419.x>

Grosholz, E., **R.E. Blake**. 2010. The Effects of Grazing Geese on Hybrid and Native *Spartina* in San Francisco Bay. In: Ayres, D.R., D.W. Kerr, S.D. Ericson and P.R. Olofson, eds. 2010. Proceedings of the Third International Conference on Invasive *Spartina*, 2004 Nov 8-10, San Francisco, CA, USA. San Francisco Estuary Invasive *Spartina* Project of the California State Coastal Conservancy: Oakland, CA. 191-196. http://www.spartina.org/project_documents/Conference_proceedings.htm

Neira, C., E. Grosholz, L. Levin, **R.E. Blake**. 2006. Mechanisms Generating Modification of Benthos Following Tidal Flat Invasion by a *Spartina* Hybrid. Ecological Applications. 16(4), 1391-1404. [https://doi.org/10.1890/1051-0761\(2006\)016\[1391:MGM0BF\]2.0.CO;2](https://doi.org/10.1890/1051-0761(2006)016[1391:MGM0BF]2.0.CO;2)

Data Packages

Turner, R., **R.E. Blake**, A.M. Liebhold. 2021. International Non-native Insect Establishment Data (0.1). Zenodo. <https://doi.org/10.5281/zenodo.5245302>

Simpson, A., Turner, R., **Blake, R.**, Liebhold, A., and Dorado, M., 2021, United States Register of Introduced and Invasive Species: U.S. Geological Survey data release, <https://doi.org/10.5066/P95XL09Q>

Blake, R.E., J.A. Olin. 2020. Code and data "Effects of multiple stressors were mixed in an experimental plant – herbivore system". Knowledge Network for Biocomplexity. <https://doi.org/10.5063/F10V8B41>

Blake, R.E., C.L. Ward, M.E. Hunsicker, A.O. Shelton, A.B. Hollowed. 2019. Code and data for biodiversity, spatial community structure, and spatial community composition of groundfish in the Gulf of Alaska. <https://doi.org/10.5063/F1V40SJ8>

Ward, Colette, **R.E. Blake**. 2017. Gulf of Alaska Portfolio Effects: Groundfish Functional Diversity Traits. DOI: <https://doi.org/10.5063/F1MK6B5J>

Funding, Fellowships, & Awards

2018 Feb. Early Career Travel Grant for Ocean Sciences Meeting Portland OR

2013 Gulf of Mexico Research Initiative RFP IV: Coastal Waters Consortium award

\$201,071 sub-budget for “Saltmarsh Plant Diversity and Ecosystem Functioning in the Face of Multiple Stressors”.

2008 – 2010	National Estuarine Research Reserve Graduate Research Fellowship	
2004 – 2007 & 2011	Graduate Assistantship	Virginia Institute of Marine Science
2000 – 2001	Leopold Schepp Foundation Scholarship	Oberlin College
1997 – 2001	Work Study Grant	Oberlin College

Teaching & Mentoring

2021 July	Lead Instructor, Summer Computational Institute	SESYNC
2021 May	Co-Instructor, Geospatial Analysis Workshop	SESYNC
2020 Dec	Instructor, Software Carpentry Workshop	Atlanta University
2020 Oct	Co-Instructor, Advanced git and tidyverse in R Workshop	SESYNC
2020 July	Lead Instructor, Computational Summer Institute	SESYNC
2019 July	Instructor, Computational Summer Institute	SESYNC
2019 April	Co-Instructor, Geospatial Analysis	SESYNC
2013 Spring	Co-Instructor, Saltmarsh Ecosystems (OCS 8900)	LSU
2011 Fall	Teaching Assistant, Fundamentals of Marine Science (MSCI 501)	VIMS
2011 Summer	Teaching Assistant, Research Experience for Undergraduates Program	VIMS

Undergraduate Mentees:

2012 – 2013	Kelli Smith	Louisiana State University
2008 – 2012	Sally Bornbush, Katelyn Jenkins, Alyssa Popovich, Heather Richardson, Soyoung Hwang, Caitlin Smoot Virginia Institute of Marine Science	

Professional Service

2022 February – Mentor, University of Maryland Info Challenge

2016 - 2019 – Co-organizer Write-On-Site writing group and writing retreat (UC Santa Barbara and University of Maryland)

2016 - Organizer, NCEAS Roundtable Talks

2014 February - Presentation Judge, Graduate Student Symposium, LUMCON

2006 Aug – 2009 March - Program Co-Chair, Atlantic Estuarine Research Society

2005 April - Benthic Ecology Meeting Organizing Committee

Manuscript reviewer for: *Estuaries and Coasts*, *Ecological Engineering*, *Diversity & Dynamics*, *Journal of Experimental Marine Biology & Ecology*, *Marine Ecology Progress Series*, *Nature Scientific Reports*, *Zoology & Ecology*

Certifications & Skills

2019 – present	Certified Carpentries Instructor	Software/Data Carpentry
2012 – 2015	Certified Boat Operator	Louisiana State University
2007 – 2012	Certified Boat Operator	Virginia Institute of Marine Science

Advanced R programming for data ingestion, cleaning, analysis, visualization, and presentation.

Basic Python programming and basic command line programming.

Basic GIS analysis.

Git/GitHub user, Stackoverflow contributor.

Professional Training

2016	CREDITS Team Science Retreat, <i>Univ. of California, Los Angeles</i>	Los Angeles, CA
2016	Alda-Kavli Leadership Program, <i>Univ. of California, Santa Barbara</i>	Santa Barbara, CA
2007	GIS class, <i>Smithsonian Conservation Biology Institute</i>	Front Royal, VA
2000	Oceanic Policy class, <i>Shoals Marine Laboratory</i>	Appledore Island, ME
1999	Marine Science program, <i>Sea Education Association</i>	Woods Hole, MA
1998	Maritime Studies program, <i>Williams-Mystic Maritime Studies</i>	Mystic, CT

Oral Presentations

Blake, R.E., Q. Read. 2021. Using open data to address pressing social-ecological issues. Ecological Society of America Meeting (August 3, 2021).

Blake, R.E., J. Shannon, T. Whiteaker. 2019. ingestr: reading environmental data from raw formats into dataframes. American Geophysical Union Meeting (December 10, 2019).

Blake, R.E., C.L. Ward, M. Hunsicker, A.O. Shelton, A.B. Hollowed. 2017. Temporal and spatial patterns in the central Gulf of Alaska groundfish community. Society for Conservation Biology, Santa Cruz Chapter (May 6, 2017, Santa Cruz, CA).

Blake, R.E., C.L. Ward, M. Hunsicker, A.O. Shelton, A.B. Hollowed. 2016. Patterns of diversity: Gulf of Alaska groundfish. Western Society of Naturalists Annual Meeting (Nov 10-13, 2016, Monterey, CA).

Blake, R.E. June 12, 2014. Impacts of anthropogenic stressors in vegetated coastal habitats. *Invited seminar* at Smithsonian Environmental Research Center (Edgewater, MD).

Blake, R.E., J.A. Olin. 2014. Direct and indirect effects of multiple stressors on *Spartina alterniflora*. Benthic Ecology Meeting (March 19-22, 2014, Jacksonville, FL).

Blake, R.E., J.A. Olin. 2014. Response of *Spartina alterniflora* to chemical and herbivore stressors. Gulf of Mexico Oil Spill & Ecosystem Science Conference (January 26-29, 2014, Mobile, AL).

Blake, R.E., J.A. Olin. 2013. Response of *Spartina alterniflora* to chemical and herbivore stressors. 22nd Biennial Conference of the Coastal & Estuarine Research Federation (Nov 3-8, 2013, San Diego, CA).

Blake, R.E., J.E. Duffy. 2012. Coastal development impacts on seagrass communities in lower Chesapeake Bay. Benthic Ecology Meeting (March 21-24, 2012, Norfolk, VA).

Blake, R.E., J.E. Duffy. 2011. Anthropogenic stressors and Chesapeake Bay eelgrass communities: an experimental examination of potential impacts. Benthic Ecology Meeting (March 16-20, 2011, Mobile, AL).

Blake, R.E., J.E. Duffy. 2010. Impacts of local coastal development on Chesapeake Bay, VA eelgrass (*Zostera marina*) communities. Western Society of Naturalists Annual Meeting (Nov 11-14, 2010, San Diego, CA).

Blake, R.E., J.E. Duffy. 2010. Grazer diversity influences multi-stressor impacts in an experimental seagrass system. Benthic Ecology Meeting (March 10-13, 2010, Wilmington, NC).

Blake, R.E., J.E. Duffy. 2007. Responses of an experimental seagrass community to environmental stressors. 19th Biennial Conference of the Estuarine Research Federation (Nov 4-8, 2007, Providence, RI).

Blake, R.E., J.E. Duffy. 2007. Impacts of multiple stressors in a model experimental seagrass (*Zostera marina*) community. Benthic Ecology Meeting (March 21-25, 2007, Atlanta, GA).

Poster Presentations

Blake, R.E., T. Klinger, S. Siedlecki, D. Monson, T. Dean, T. Wootton. 2018. Environmental drivers of mussel abundance dominate across scales in the central Gulf of Alaska. Ocean Sciences Meeting (Feb 11-16, 2018, Portland, OR).

Blake, R.E., J. Couture, C.L. Ward. 2015. Synthetic Ecology Across Scales: a Gulf of Alaska case study. Coastal & Estuarine Research Federation (Nov 8-13, 2015, Portland, OR).

Blake, R.E., J.A. Olin, R.E. Turner. 2015. Variation in *Spartina alterniflora* function in south Louisiana saltmarshes. Gulf of Mexico Oil Spill & Ecosystem Science Conference (Feb. 16-20, 2015, Houston, TX).

Blake, R.E., J.E. Duffy. 2009. Assessing the influence of local shoreline development on the eelgrass (*Zostera marina*) community of lower Chesapeake Bay, VA. 20th Biennial Conference of the Coastal & Estuarine Research Federation (Nov. 1-5, 2009, Portland, OR).

Blake, R.E., J.E. Duffy. 2009. Faunal Community Composition in Chesapeake Bay eelgrass (*Zostera marina*) beds along a gradient of shoreline development. Benthic Ecology Meeting (March 4-7, 2009, Corpus Christi, TX).

Wozniak, A., **R.E. Blake,** L. Gerald, L. Haas. 2005. Hydrodynamic Influence on Nutrient Limitation and Species Composition of the York River, VA Spring Bloom. 18th Biennial Conference of the Estuarine Research Federation (Oct 16-20, 2005, Norfolk, VA).

Blake, R.E., C. Tyler, E. Grosholz. 2004. Estimating the Time for Ecosystem Recovery Following *Spartina* Eradication. Western Society of Naturalists Annual Meeting (Nov 11-14, 2004, Rohnert Park, CA).

Blake, R.E., E. Grosholz, W. S. Norton, N. Rayl. 2003. Selective Grazing by Canada Geese and the *Spartina* Invasion in San Francisco Bay. 17th Biennial Conference of the Estuarine Research Federation (Sept 14-18, 2003, Seattle, WA).