

# 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

4/2022 – present *Data Scientist 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

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. *In Review*. Global Lepidoptera invasions patterns.

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. *In Revision*. Effects of multiple stressors were mixed in an experimental plant-herbivore system.

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*. DOI:  
<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*. DOI: <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. DOI: <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 DOI: <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 DOI: <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. DOI: <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*. DOI: [10.1371/journal.pone.0199789](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*. DOI: [10.1093/icesjms/fsx079](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. DOI: 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. DOI: <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. DOI: <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. DOI: <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. DOI: <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](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. DOI: [https://doi.org/10.1890/1051-0761\(2006\)016\[1391:MGMBOF\]2.0.CO;2](https://doi.org/10.1890/1051-0761(2006)016[1391:MGMBOF]2.0.CO;2)

#### Data Packages

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

**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. DOI: <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. DOI: <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

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, and visualization.

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.**, 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. 22<sup>nd</sup> 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. 19<sup>th</sup> 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. 20<sup>th</sup> 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. 18<sup>th</sup> 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. 17<sup>th</sup> Biennial Conference of the Estuarine Research Federation (Sept 14-18, 2003, Seattle, WA).