

Cassie Gurbisz

St. Mary's College of Maryland | Environmental Studies Program
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Education

- 2016 Ph.D. Marine, Marine-Estuarine Environmental Science
University of Maryland Center for Environmental Science (UMCES)
Horn Point Laboratory (HPL)
- 2005 B.S. Environmental Science and Studio Art
Dickinson College

Research interests

Coastal and estuarine ecosystem ecology, submersed aquatic vegetation, nutrient cycling, biophysical interactions, undergraduate-driven research

Employment

- 2017-present Assistant Professor of Environmental Studies, St. Mary's College of Maryland
- 2016-2017 Postdoctoral Fellow, National Socio-Environmental Synthesis Center (SESYNC)
- 2010-2016 Graduate Research Assistant, UMCES HPL
- 2007-2010 Program Manager and Environmental Science Educator, UMCES HPL and the National Science Foundation (NSF) Centers for Ocean Science Education Excellence (COSEE)
- 2005-2007 Environmental Educator and Education Center Manager, Chesapeake Bay Foundation

Publications

- 2020 Su, J., W. Cai, J. Brodeur, B. Chen, N. Hussain, Y. Yao, C. Ni, J. Testa, M. Li, X. Xie, W. Ni, M. Scaboo, Y. Xu, J. Cornwell, **C. Gurbisz**, M.S. Owens, G.G. Waldbusser, M. Dai, W.M. Kemp. Chesapeake Bay acidification buffered by spatially decoupled carbonate mineral cycling. *Nature Geoscience*. In press.
- 2019 Orth, R.J., W. C. Dennison, **C. Gurbisz**, M. Hannam, J. Keisman, J.B. Landry, J.S. Lefcheck, K.A. Moore, R.R. Murphy, C.J. Patrick, J. Testa, D.E. Weller, D.J. Wilcox, R.A. Batik. Long-term annual aerial surveys of submersed aquatic vegetation (SAV) support science, management, and restoration. *Estuaries and Coasts*
<https://doi.org/10.1007/s12237-019-00651-w>

- 2018 Lefcheck, J.S., R.J. Orth, W.C. Dennison, D.J. Wilcox, R.R. Murphy, J. Keisman, **C. Gurbisz**, M. Hannam, J.B. Landry, K.A. Moore, C.J. Patrick, J. Testa, D.W. Weller, R.A. Batiuk. Long-term nutrient reductions lead to the unprecedented recovery of a temperate coastal region. *Proceedings of the National Academy of Sciences* 115(14): 358-3662
- 2017 Orth, R.J., W.C. Dennison, J.S. Lefcheck, **C. Gurbisz**, M. Hannam, J. Keisman, J.B. Landry, K.A. Moore, R.R. Murphy, C.J. Patrick, J. Testa, D.E. Weller, D.J. Wilcox. Submersed aquatic vegetation in Chesapeake Bay: Sentinel species in a changing world. *BioScience* 67(8): 698-712
- 2017 **Gurbisz, C.**, W.M. Kemp, J. Cornwell, L. Sanford, M. Owens, D. Hinkle. Interactive effects of physical and biogeochemical feedback processes in a large submersed plant bed. *Estuaries and Coasts*. 40(6): 1626-1641
- 2017 Wainger, L., D. Secor, **C. Gurbisz**, P. Glibert, W.M. Kemp, E. Houde, J. Richkus, M. Barber. Resilience indicators support valuation of estuarine ecosystem restoration under climate change. *Environmental Health and Sustainability*. 3(4): 1-19
- 2016 **Gurbisz, C.**, W.M. Kemp, L. Sanford, R.J. Orth. Mechanisms of storm-related loss and resilience in a large submersed plant bed. *Estuaries and Coasts*. 39(4): 951-966
- 2014 **Gurbisz, C.** and W.M. Kemp. Unexpected resurgence of a large submersed plant bed in upper Chesapeake Bay: Analysis of time series data. *Limnology and Oceanography*. 59(2): 482-494
- 2012 Murray, L. and **C. Gurbisz**. Learning science through research. *Journal of Information Technology and Application in Education*. 1(3): 105-107
- 2012 Murray, L., **C. Gurbisz**, D. Gibson, J. Woerner, T. Carruthers. Collaborative partnerships help bridge the gap between science and education. *Eos, Transactions American Geophysical Union*. 94(49): 510-511
- 2011 **Gurbisz, C.**, Murray, L., Hinkle, D., Crump, B. Invisible world: Exploring microscopic life. *Green Teacher*. 92: 28-30
- 2010 Testa, J., **C. Gurbisz**, L. Murray, L. Gray, J. Bosch, C. Burrell, and W.M. Kemp. Investigating dead zones in aquatic ecosystems: Surfacing a mystery of the deep. *The Science Teacher*. 77(2): 27-32
- 2009 Ksiazek, K., K. McGlathery, L. Reynolds, A. Schwartzchild, C. Wilkerson, T. Carruthers, **C. Gurbisz**, J. Woerner, L. Murray. Learning about coastal trends: What is the story with seagrasses? *Science Activities*. 47(2): 27-31

Grants and fellowships

- 2021 Maryland Department of Natural Resources, "Oyster spat recruitment study 2021" \$7,471 Principal Investigator 4/15/2021-1/31/2022

- 2020 Chesapeake Bay Trust, “Development of technical guidance manual and outreach materials for small-scale submerged aquatic vegetation restoration in Chesapeake Bay and its tidal tributaries” \$8,431 Co-Investigator. 3/1/2020 – 1/31/2022
- 2020 Maryland Sea Grant, “Effects of oyster aquaculture on submersed aquatic vegetation (SAV) habitat” \$142,722 Principal Investigator. 2/1/2020 – 1/31/2022
- 2020 Maryland Department of Natural Resources, “Oyster spat recruitment study 2020” \$7,242 Principal Investigator 4/1/2020 – 12/30/2020
- 2020 St. Mary’s College of Maryland Faculty Development Award \$2,068
- 2019 Maryland Department of Natural Resources, “Oyster spat recruitment study 2019” \$5,000 Principal Investigator 5/28/2019 – 11/31/2019
- 2019 St. Mary’s College of Maryland Faculty Development Award \$1,500
- 2018 St. Mary’s College of Maryland Faculty Development Award \$1,300
- 2018 Maryland Sea Grant, “Response of SAV beds in upper Chesapeake Bay to the 2018 Susquehanna River flood” \$1,843 Co-Investigator. 8/2018-8/2019
- 2018 Maryland Sea Grant, “Quantifying nutrient sequestration in Chesapeake Bay submersed aquatic vegetation (SAV) beds” \$144,239. Principal Investigator. 2/2018-2/2020
- 2016 SESYNC/NSF Long-Term Ecological Research (LTER) Postdoctoral Fellowship
- 2014 Concordia Foundation Graduate Research Fellowship
- 2011 Maryland Sea Grant Graduate Research Fellowship
- 2010 Horn Point Graduate Research Fellowship

Invited talks

- 2020 SAV-aquaculture interactions in Chesapeake Bay. US EPA Chesapeake Bay Program Goal Implementation Team Chairs Meeting. 3 June 2020
- 2018 Status and Trends of Submersed Aquatic Vegetation (SAV) in Chesapeake Bay: A Synthesis. Chesapeake Bay Modeling Symposium SAV Recovery Panel. 13 June, Annapolis, MD
- 2018 Coastal restoration and resilience: Case studies of salt marsh and submersed aquatic vegetation ecosystem dynamics. University of Maryland Center for Environmental Science Chesapeake Biological Laboratory, 25 April, Solomons, MD
- 2016 SAV trends and processes inferred through analysis of monitoring data. Chesapeake Bay Program Principal Investigator Workshop: Monitoring changes in the upper Chesapeake Bay resulting from lower Susquehanna River/Conowingo Dam nutrient and sediment reduction actions. Annapolis, MD
- 2016 Resilience of the Susquehanna Flats SAV bed to flood events. Chesapeake Bay Program Scientific and Technical Advisory Committee Workshop: Conowingo infill influence on Chesapeake water quality. Annapolis, MD

- 2015 Investigating change in an underwater plant ecosystem. Salisbury University Department of Biology, Salisbury, MD
- 2015 Unexpected resurgence of the Susquehanna Flats SAV bed: Analysis of time series data. Chesapeake Bay Program Modeling Workgroup, Annapolis, MD
- 2012 Potential impacts of Tropical Storm Lee on submersed plants at Susquehanna Flats. Horn Point Laboratory Rapid Response Storm Workshop, Cambridge, MD

Conference presentations

- 2020 SAV-aquaculture interactions in Chesapeake Bay, Maryland. Chesapeake Community Research Symposium, 9 Jun 2020
- 2019 How much does recovering submersed aquatic vegetation modulate estuarine nutrient and carbon flows? Coastal and Estuarine Research Federation, 4 Nov, Mobile, AL
- 2018 Landscape-scale marsh dynamics in an Atlantic barrier island system. Ecological Society of America, 7 Aug, New Orleans, LA
- 2017 Inflection points in Chesapeake Bay submersed aquatic vegetation research: Recent progress and future potential. Coastal and Estuarine Research Federation, 1 Nov, Providence, RI
- 2015 Gurbisz, C, W. M. Kemp, L. Sanford, J. Cornwell, M. Owens, D. Hinkle. Feedbacks as a resilience mechanism in submersed plant beds. Coastal and Estuarine Research Federation, Portland, OR
- 2015 Gurbisz, C. and W. M. Kemp. Role of feedback processes in estuarine submersed plant bed dynamics. Ecological Society of America, Baltimore, MD
- 2015 Gurbisz, C., W. M. Kemp, L. Sanford, J. Cornwell, M. Owens, D. Hinkle. Biophysical interactions in a large submersed plant bed and implications for resilience. Atlantic Estuarine Research Society, Atlantic City, NJ
- 2014 Gurbisz, C. and W. M. Kemp. Quantifying resilience from empirical data. Atlantic Estuarine Research Society, Ocean City, MD
- 2013 Gurbisz, C., W. M. Kemp, J. Cornwell, N. Nidzieko, and L. Sanford. Biophysical interactions in a large submersed plant bed in Chesapeake Bay. Coastal and Estuarine Research Federation, San Diego, CA
- 2013 Gurbisz, C. and W. M. Kemp. Impact of extreme weather on a large submersed plant bed in Chesapeake Bay. Atlantic Estuarine Research Society, Williamsburg, VA
- 2013 Gurbisz, C. and W. M. Kemp. Impact of extreme weather on a large submersed plant bed in Chesapeake Bay: Analysis of time series data. American Society of Limnology and Oceanography, New Orleans, LA

- 2011 Gurbisz, C. and W. M. Kemp. Unexpected resurgence of a submersed plant bed in Chesapeake Bay: Analysis of time series data. Coastal and Estuarine Research Federation meeting, Daytona Beach, FL
- 2010 Gurbisz, C., L. Murray, D. Gibson, M. Leandre, T. Carruthers, and J. Woerner. Building awareness of trends in coastal science through scientist-educator partnerships. American Society of Limnology and Oceanography Ocean Sciences Meeting, Portland, OR

Teaching

St. Mary's College of Maryland Environmental Studies Program

Introduction to Environmental Studies (Fall 2017, Spring 2018, Fall 2018, Spring 2019, Fall 2020)
Environmental Studies Keystone Seminar (Fall 2017, Fall 2021)
Introduction to Environmental Science with lab (Spring 2018, Spring 2019, Fall 2019)
Chesapeake Bay Science and Management (Spring 2018, Fall 2018)
Climate Change by the Numbers (Spring 2019)
Environmental Field Research Methods (Fall 2019)
Environmental Studies Senior Capstone Course (Spring 2020, Spring 2021)

University of Maryland Center for Environmental Science

Data Graphics in R (Spring 2017)

Student mentoring

Undergraduate Independent study

Tyson Johnson, Evan Kostelecky (Summer 2021)
Ellyse Sutliff, Lindsey Stevenson (Spring 2020)
Victoria Lusk (Spring 2019)
Meghan Petenbrink, Sylvia Klein (Spring 2018)

St. Mary's Senior Research Projects

Dylan Powell, Tyler Scott, Isaac Hersh, Isaac Page, Chelsea English, Kajsa Newton (2018-2019)
Amy Angeletti, James Beauregard, Simon Hoon, Victoria Lusk, Colleen McGuire, Ellyse Sutliff (2019-2020)
Joe Furio, Dylan Goldsborough, Jacqueline Harriott, Mackenzie Malli, Julianna Parecco, Ben Stillson (2020-2021)

Service to profession

Peer reviewer

Journals: *Marine Ecology Progress Series*, *Restoration Ecology*, *Ecological Applications*, *Estuaries and Coasts*, *Hydrobiologia*, *Gulf and Caribbean Research*

Funding agencies: Hudson River Foundation, US EPA Chesapeake Bay Program, DE Sea Grant, DE National Estuarine Research Reserve, SESYNC

Regional committees and working groups

- 2020-present Ecological Effects of Sea Level Rise Management Transition Advisory Group, MD Department of Natural Resources
- 2016-present Submersed Aquatic Vegetation Monitoring Steering Committee, US EPA Chesapeake Bay Program
- 2010-present Submerged Aquatic Vegetation Workgroup, US EPA Chesapeake Bay Program
- 2016-2019 Submersed Aquatic Vegetation Synthesis Group, US EPA Chesapeake Bay Program

Association leadership and membership

- 2018-present Treasurer and Executive Board Member, Atlantic Estuarine Research Society
- 2019; 2021 Scientific Program Committee/Film Festival Co-Chair, Coastal and Estuarine Research Federation
- 2015 Session organizer (Feedback processes in coastal and estuarine ecosystems) Coastal and Estuarine Research Federation Meeting, Portland, OR
- 2015 Field trip organizer and leader (Baltimore Harbor ecology and sailing trip), Ecological Society of America Meeting, Baltimore, MD
- 2011-present Member, American Society of Limnology and Oceanography, Coastal and Estuarine Research Federation, Ecological Society of America, Atlantic Estuarine Research Society

Campus service

- 2021- Faculty Senator
- 2020-present Marine Science Program Steering Committee
- 2020-present Applied Data Science Program Steering Committee
- 2020-present Assessment Implementation Team
- 2020-present Faculty Development Grant Committee

Media coverage

- 2020 Chesapeake Bay Journal “Chesapeake’s grasses hit hard by head, high flows in 2019” (Jul 20)
- 2019 Chesapeake Bay Journal “Scientists fear steep loss of Bay grasses lies ahead” (Aug 21)
- 2019 Chesapeake Bay Journal “Scientists waiting to see if record 2018 rainfall dampens Bay recovery” (Jan 7)
- 2018 Chesapeake Bay Journal “Washed away? Torrential rains threaten Bay restoration gains” (Sep 4)
- 2018 Baltimore Sun, “As another surge of stormwater and pollution flows through Conowingo Dam, scientists worry about impact on oysters, grasses” (cover story, Aug 16)

- 2018 Coverage of co-authored PNAS paper on National Public Radio, The Conversation, The Washington Post, Environmental Monitor, The Star Democrat, Grist, and others (March 5-6)
- 2016 Star Democrat, “Susquehanna Flats naturally resilient to storms, flooding” (June 1)
- 2014 Chesapeake Bay Journal, “Comeback of Susquehanna Flats grasses hints of sunny future” (Nov 3)
- 2014 Associated Press TV, “Underwater grasses help clean Chesapeake Bay (Oct 7)
- 2014 Star Democrat, “Flats may hold key for Bay” (Sep 23)
- 2014 Environmental Monitor, “On the Susquehanna Flats, scientists study stability of once-vanquished Chesapeake seagrass beds” (Sep 15)
- 2014 WAMU (NPR) News, “Scientists marvel at resilience of underwater grasses” (Sep 7)
- 2014 The Baltimore Sun, “Susquehanna Flats show hope for Bay” (Sep 2)
- 2012 Chesapeake Quarterly, “The bay grass surprise” (Dec 1)
- 2012 Star Democrat, “Bay grasses make comeback” (Oct 21)

Outreach

- 2014 Created short film, “Revival: My research on one ecosystem’s unexpected recovery,” which was featured on the Maryland Sea Grant and UMCES YouTube channels (<https://www.youtube.com/watch?v=6hE-I8mvWlo>)
- 2011 Instructor, Chesapeake Bay Maritime Museum Bay 101 Public Lecture Series
- 2010 Co-developer, Ocean Science Course Curriculum and Coastal Science Education Modules (<http://www.teachoceanscience.net>)