

# Emily J. Shumchenia, PhD

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Emily is a marine scientist with over twelve years of experience practicing science and science communication. Throughout her career she has fostered and maintained working relationships with leading marine scientists and key ocean stakeholders in New England and beyond, with the goal of integrating the best available science in coastal and ocean management and decision-making. Emily leverages this broad network when synthesizing and distilling scientific information into simple and clear data and communication products. Aside from leadership and project management roles, she enjoys facilitation, data synthesis, modeling and visualization, writing, and graphics development. Through her company, E&C Enviroscope, Emily works with teams in government, academia, industry, and non-profit organizations.

## EDUCATION

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2010 PhD, Oceanography, University of Rhode Island  
2005 BS, Marine biology, University of Rhode Island

## WORK EXPERIENCE

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**Principal, E&C Enviroscope, LLC** 2014 - present

- Northeast Ocean Plan and Northeast Ocean Data Portal | *Northeast Regional Ocean Council* | [www.neoceanplanning.org](http://www.neoceanplanning.org) | [www.northeastoceandata.org](http://www.northeastoceandata.org)
- Advancing the Long Island Sound Blue Plan Ecological Characterization Process, with EPI Consulting | *The Nature Conservancy, Connecticut Sea Grant, Connecticut Department of Energy and Environmental Protection*
- Advancing the Biological Condition Gradient Framework for US Estuaries | *Great Lakes Environmental Center, Inc., US EPA Region 1, US EPA Office of Science and Technology, Narragansett Bay Estuary Program, Massachusetts Bays Estuary Program*
- Support to Mid-Atlantic Regional Planning Body Ecologically Rich Areas Work Group | *Monmouth University*
- Developing an indicator monitoring and assessment program to support Mid-Atlantic Regional Ocean Action Plan Healthy Ocean Ecosystem Action 5, with the Consensus Building Institute and EPI Consulting | *Mid-Atlantic Regional Council on the Ocean*
- Diver outreach to support the Black Sea Bass stock assessment, with EPI Consulting | *Integrated Statistics, NOAA Northeast Fisheries Science Center*
- Mid-Atlantic Regional Ocean Assessment, with Waterview Consulting | *Mid-Atlantic Regional Council on the Ocean* | [www.roa.midatlanticocean.org](http://www.roa.midatlanticocean.org)
- Ecological synthesis and classification of submerged marine habitats in Cape Cod National Seashore, Massachusetts | *Center for Coastal Studies, National Park Service*

### Freelance marine scientist

2013 - 2014

- Seafloor and habitat mapping | *Maine Coastal Mapping Initiative, Maine Coastal Program* | <https://www.maine.gov/DACF/mcp/planning/mcmi/index.htm>
- Topo-bathy data modeling on Cape Cod, Massachusetts | *Center for Coastal Studies*
- Review of marine habitat classification, characterization, and modeling activities in the Northeast US, with Coastal Vision, LLC | *Northeast Regional Ocean Council*

### Postdoctoral fellow

*University of Rhode Island Graduate School of Oceanography*

2010 - 2013

- Narragansett Bay benthic biotope characterization and habitat quality assessment | *Rhode Island Sea Grant, US EPA Region 1*
- Application of the Coastal and Marine Ecological Classification Standard (CMECS) to the Northwest Atlantic | *The Nature Conservancy, Massachusetts Division of Marine Fisheries, North Atlantic Landscape Conservation Cooperative*
- Seafloor mapping of Long Island Sound – Phase 1 Pilot Project | *Long Island Sound Mapping and Research Collaborative: University of Connecticut, University of New Haven, USGS*
- Developing environmental protocols and monitoring tools to support ocean renewable energy and stewardship | *National Oceanographic Partnership Program*

### Graduate research assistant

*University of Rhode Island Graduate School of Oceanography*

2005 - 2010

- Dissertation: *Benthic habitat mapping and assessment using organism-sediment relationships*
- Coordinated Narragansett BayMap Project (*RI Sea Grant*) and collaboration with USDA-NRCS subaqueous soils mapping in Narragansett Bay (MapCoast Partnership)
- Robert L. McMaster Award in Marine Geology
- US EPA National Network for Environmental Studies Fellowship

### PEER-REVIEWED PUBLICATIONS

 [visit my google scholar page](#)

**Shumchenia EJ**, Guarinello ML, King JW. 2016. A re-assessment of Narragansett Bay benthic habitat quality between 1988 and 2008. *Estuaries and Coasts* 39: 1463-1477.

**Shumchenia EJ**, Guarinello ML, Carey DA, Lipsky A, Greene J, Mayer L, Nixon ME, Weber J. 2015. Inventory and comparative evaluation of seabed mapping, classification and modeling activities in the Northwest Atlantic, USA to support regional ocean planning. *Journal of Sea Research* 100: 133-140.

**Shumchenia EJ**, Pelletier MC, Cicchetti G, Pesch CE, Pryor M, and Deacutis CF. 2015. A biological condition gradient model for historical assessment of estuarine habitat structure. *Journal of Environmental Management* 55:143-158.

Grilli AR, and **Shumchenia EJ**. 2015. Toward wind farm monitoring optimization: assessment of ecological zones from marine landscapes using machine learning algorithms. *Hydrobiologia* 756:117-137.

**Shumchenia EJ**, Smith SL, McCann J, Carnevale M, Fugate G, Kenney RD, King JW, Paton P, Schwartz M, Spaulding M, and Winiarski KJ. 2012. An adaptive framework for selecting

environmental monitoring protocols to support ocean renewable energy development. *Scientific World Journal* 2012: Article ID 450685  
doi:10.1100/2012/450685.

Galparsoro I, Connor DW, Borja Á, et al. 2012. Using EUNIS habitat classification for benthic mapping in European seas: present concerns and future needs. *Marine Pollution Bulletin* 64: 2630-2638.

Stolt M, Bradley M, Turenne J, Payne M, Scherer E, Cicchetti G, King J, **Shumchenia E**, Guarinello M, Boothroyd J, Oakley B, Thornber C, and August P. 2011. Methods and protocols for mapping shallow subtidal benthic habitats. *Journal of Coastal Research* 27: 1-15.

**Shumchenia EJ** and King JW. 2010. Comparison of methods for integrating biological and physical data for marine habitat mapping and classification. *Continental Shelf Research* 30: 1717-1729.

**Shumchenia EJ** and King JW. 2010. Evaluation of sediment profile imagery as a tool for assessing water quality in Greenwich Bay, Rhode Island, USA. *Ecological Indicators* 10: 818-825.

Guarinello ML, **Shumchenia EJ**, and King JW. 2010. Marine habitat classification for ecosystem-based management: A proposed hierarchical framework. *Environmental Management* 45, 793-806.

## OTHER PUBLICATIONS

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Cicchetti G., Pelletier MC, Rocha KJ, Bradley P, Santavy DL, Pryor ME, Jackson SK, Davies SP, Deacutis CF, and **Shumchenia EJ**. 2017. Implementing the Biological Condition Gradient Framework for Management of Estuaries and Coasts. U.S. Environmental Protection Agency, Office of Research and Development, Atlantic Ecology Division, Narragansett RI. EPA/600/R-15/287.

Weaver KJ, **Shumchenia EJ**, Ford KH, Rousseau MA, Greene JK, Anderson MG, and King JW. 2013. Application of the Coastal and Marine Ecological Classification Standard (CMECS) to the Northwest Atlantic. The Nature Conservancy, Eastern Division Conservation Science, Eastern Regional Office. Boston, MA. <http://nature.ly/EDcmecs>

McCann J, et al. 2012. Developing Environmental Protocols and Modeling Tools to Support Ocean Renewable Energy and Stewardship. U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs, Herndon, VA, OCS Study BOEM 2012-082, 626 pp.

Pesch CE, **Shumchenia EJ**, Charpentier M, and Pelletier MC. 2012. Imprint of the past: Ecological history of Greenwich Bay, Rhode Island. EPA/600/R-12/050. US Environmental Protection Agency, Office of Research and Development, National Health and Environmental Effects Laboratory, Atlantic Ecology Division, Narragansett, RI.

**Shumchenia EJ** and King JW. 2010. Assessment of shallow water habitat mapping tools and methods: A pilot study at Fire Island National Seashore. Natural Resource Technical Report NPS/NERO/NRTR - 2010/323. National Park Service, Fort Collins, Colorado.

## PROFESSIONAL SERVICE

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Reviewer for: *Geosciences*, *Applied Geography*, ESRI Press, *Estuarine Coastal and Shelf Science*, *International Journal of Geo-Information*, *Journal of Applied Ecology*, *Journal of Environmental Planning and Management*, *Journal of Sea Research*, *Marine Ecology Progress Series*, New York Sea Grant, The Nature Conservancy

2012 – present    Senior fellow, Coastal Institute, University of Rhode Island  
2009 – present    FGDC Review/Implementation Group member, Coastal and Marine Ecological Classification Standard (NOAA and NatureServe)  
2005 – present    Steering committee member, J Stanley Cobb Endowment  
2013                Session co-chair, ASLO Aquatic Science Meeting, New Orleans LA  
2012                Pre-selection judge for the *Grantham Prize for Excellence in Environmental Reporting*, Metcalf Institute for Environmental Reporting  
2007                Judge, National Ocean Sciences Bowl  
2006 – 2010      Science educator, Annual Workshop for Journalists, Metcalf Institute for Environmental Reporting  
2005                Faculty search committee student member, Department of Biological Sciences, University of Rhode Island  
2004 – 2005      Peer mentor, Department of Biological Sciences, University of Rhode Island

## SKILLS AND CERTIFICATIONS

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ESRI ArcGIS – Geospatial statistics, spatial modeling  
Data science and statistics – R, PRIMER-E, SAS  
Adobe Creative Suite  
Seabed acoustic data visualization – QPS software including Fledermaus, CARIS,  
CPR/First Aid  
Small vessel (< 40') operation  
SDI open water SCUBA