WOODS HOLE GROUP
FOR EARTH, FROM SPACE
A CLS COMPANY

Brittany L. Hoffnagle, M.S., B.S.
Environmental Scientist

EXPERTISE

Geospatial data collection and analysis, coastal environmental management, ecological risk assessment, climate change vulnerability assessment, long-term water quality monitoring, in-situ field data collection, tidal creek morphology and migration.

QUALIFICATION SUMMARY

- Geospatial data collection, reduction and analysis using RTK-GPS and ESRI ArcGIS.
- Coastal processes and their effects on shoreline morphology and tidal creek migration.
- Experience in field data collection of water, elevation, vegetation, birds, marine mammals and invertebrates.
- Conducting ecological risk assessments and climate change vulnerability assessments.
- Providing technical support for visual and verbal scientific communication to diverse audiences.
- Software expertise: ESRI ArcGIS; HYPACK; Fledermaus; MatLab; SigmaPlot; Onset HOBOware, SPSS; Microsoft Office Suite; Adobe Photoshop and Illustrator; SLAMM: Sea Level Affecting Marshes Model.

WORK EXPERIENCE

2015-Present	Environmental Scientist, Woods Hole Group, Inc.
2013-2014	NSF Graduate STEM Fellow, Horry County, SC Schools
2012-2015	Graduate Assistant, Coastal Carolina University
2010	Research Technician, Arizona Game and Fish Dept.
2009-2010	Research Technician, Whale Center of New England
2008-2009	Education Intern, Delaware Nature Society

Education
2015 – M.S.
Coastal Marine and Wetland Studies
Coastal Carolina University
2008 – B.S.
Environmental Biology
Coastal Carolina University

Certificates of Training
- OSHA 40-Hour HAZWOPER
- NOAA Coastal Inundation Mapping
- Edward Tufte: Presenting Data and Information

Professional Affiliations
- New England Estuarine Research Society
- Society for Conservation GIS
The Coastal Society

Publications & Presentations
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KEY PROJECTS

**Coastal Vulnerability Indexing, Mapping, Assessment and Adaptation of
Trustees of Reservations Coastal Properties, Trustees of Reservations.
Environmental Scientist**
Conducted detailed climate change vulnerability assessments for numerous Trustees of Reservations coastal properties using a highly modified bathtub analysis approach and a highly resolved sea level rise and extreme weather model. The Trustees property vulnerability was then used to determine the Coastal Vulnerability Index for the purpose of understanding the potential SLR risk to various property assets (i.e. trails, infrastructure, buildings).The CVI results were utilized by the Trustees of Reservations to prioritize adaptation and resiliency efforts.

**MassDOT-FHWA Pilot Project for Climate Change and Extreme Weather
Vulnerability Assessments and Adaptation Options of the Central Artery,
Massachusetts Department of Transportation. Environmental Scientist.**
Utilized previously completed vulnerability assessment data to conduct a time-step GIS analysis of flood pathways and flooding residence times for Central Artery areas containing important infrastructure and tunnel networks. Flooding pathways and residence times were displayed in maps to support emergency response and adaptation planning for various time horizons- present day, 2030, and 2070.

**Climate Change Resiliency Investigation and Feasibility Evaluation of Easton
Pond, City of Newport, Rhode Island. Environmental Scientist.**
Critically reviewed and assessed the technical merits of existing mapping platforms (i.e. FEMA Flood Insurance Maps, NOAAs SLR viewer, Climate Centrals Surging Seas, etc.) to provide the city of Easton information about their accuracy and limitations. Conducted a climate change and vulnerability assessment for Easton Pond for various planning horizons- present day, 2030, 2070. All findings of the review and the results of the vulnerability assessment were provided to Fuss & O'Neill to assist the City of Newport in future planning, maintenance, and adaptations of Easton pond and associated dams in response to climate change and sea level rise.

**Climate Change and Extreme Weather Vulnerability Assessments for
Massachusetts Communities, Kleinfelder. Environmental Scientist**
Assisted in the preparation of vulnerability maps, based on results of a highly resolved sea level rise and extreme weather model, for a number of Massachusetts North Shore and South Shore communities. Identified appropriate building locations of several hospital campuses to understand the potential SLR risk. Vulnerability maps were then used to support emergency preparedness and adaptation scoping over various planning horizons – present day, 2030, and 2070.

**Technical Support for Evaluation of Preliminary and Effective FEMA FIRMS
for various Massachusetts Counties/Towns- Environmental Scientist**
Utilized ESRI ArcGIS to visualize updated modeling results for predicted Special Flood Hazard Areas (SFHA's) and Base Flood Elevations (BFE's) along identified transects. Produced annotated and topographic maps to reflect flood zone changes.

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KEY PROJECTS (CONTINUED)

Ecological Risk Assessment of Newtown Creek, NYCDEP. Environmental Scientist.
Provided technical support for the ecological risk assessment of Newtown Creek in support of the CERCLA process. Reviewed and synthesized benthic community data to understand temporal and spatial differences in species abundance, number of species, and dominant species index within the study site, as well as four regional reference areas. Evaluated the effects of Combined Sewage Outflows (CSO's) on these benthic community metrics. Utilized ArcMap to create figures and graphics representing results of the synthesis of data.

Ecological Risk Assessment of Boston Harbor Clam Flats, Massachusetts Port Authority. Environmental Scientist
Conducted an in-depth review of oil and oil-related contaminant documents for the Boston Harbor and connected tributaries using the Massachusetts Department of Environmental Protection online database. Identified all historical and present locations of known oil spills occurring within 2000 feet of the nearest water source. Prepared a map of all known locations to support an investigation of the links between oil contamination, neoplasia and a soft shell clam mortality event.

Ecological Risk Assessment of a Wood Products Facility. HTE Northeast, Inc. Environmental Scientist
Completed a Stage II environmental risk characterization under the Massachusetts Contingency Plan for the exposure of biota to metals in sediments and prey items using various food chain models. Applied the PEC-Quotient model to assess probable sediment toxicity to sediment dwelling organisms. Used bioaccumulation models to estimate tissue concentrations in sediment dwelling organisms, and calculated the dose to higher trophic levels to determine the potential risk to wildlife populations.

PUBLICATIONS & PRESENTATIONS

Hoffnagle, B.H., J. Famely, T. Wickwire, T. O'Shea, and V. Antil. 2017. Using the ArcGIS Framework to Conduct Coastal Climate Change Vulnerability Assessments for Trustees of Reservations' Properties. Oral Presentation at the Northeast ARC User Group Spring Spatial Technologies Conference, Amherst, MA, May 2017.

Hoffnagle, B, J Famely, T Wickwire, T O'Shea, V Antil. 2017. Poster Presentation: The Use of a Coastal Vulnerability Assessment to Prioritize Habitat Adaptation Strategies in Response to Future Climate Change. Cape Cod Natural History Conference, Barnstable, MA. March 11, 2017.

O'Shea, T, T Wickwire, B Hoffnagle, V Antil, R Hopping. 2016. PRESENTATION: Habitats, Roads, Cultural and Recreational Resources, Buildings and Bathrooms: In a Changing Climate, What Should We Protect? Coastal Vulnerability Indexing, Mapping, Assessment and Adaptation on The Trustees of Reservations Coastal Properties – Case Study. 4th Annual Cape Coastal Conference, "Taking Action for a Prosperous and Healthy Cape: Putting Science, History and Innovative Economic Strategies to Work", Hyannis Resort and Conference Center, Hyannis, MA. December 6-7, 2016.

PUBLICATIONS AND PRESENTATIONS (CONTINUED)

Hoffnagle, B.L. 2015. Linking water quality and beach morphodynamics in a heavily impacted tidal creek in Myrtle Beach, South Carolina. Master's Thesis. Coastal Carolina University. Conway, South Carolina.

Hoffnagle, B.L., E.E. Hackett, R.N. Peterson, M.P. Slattery, and R.F. Viso. 2014. Effect of morphological change on tidal range within a tidal creek. Southeastern Estuarine Research Society Semi-annual Meeting. Carolina Beach, North Carolina. Oral

Hoffnagle, B.L., and A.E. Grogan. 2014. Enhancing a middle school curriculum with research and technology, the importance of integrating scientists in education. South Estuarine Research Society 40th Anniversary Meeting. Savanna, Georgia. Poster

Famely, J., K. Bosma and B. Hoffnagle. 2016. Sea Level Rise and Storm Surge Inundation Mapping—Great Marsh Communities (Essex County, MA). Prepared by Woods Hole Group for National Wildlife Federation and U.S. Geological Survey.

2013 National Science Foundation Graduate STEM Fellowship. Placement in 8th grade Horry County, South Carolina science classroom.

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