

Melanie K. Hayn
MelanieHayn@gmail.com

GIS Technician
Data Analyst
Biogeochemist

AREAS OF SPECIALIZATION

- Geographic Information Systems (GIS)
- Spatial analysis and statistics
- Ecological data analysis
- Metadata management
- Nutrient chemistry and analysis

EDUCATION

- 2012 Cornell University Graduate School
M.S. in Natural Resources - spatial statistics and biogeochemistry
Thesis: "Exchange of nitrogen and phosphorus between a shallow estuary and coastal waters"
- 2004 Cornell University, College of Agriculture and Life Science
B.S. in Science of Earth Systems - Summa cum laude with distinction in research
Thesis: "Impact of ground water sulfate delivery on anaerobic respiration and dissolved CO2 concentrations in a rich fen in Central New York."
- 2003 Semester in Environmental Science, Marine Biological Laboratory, Woods Hole, MA

WORK HISTORY

- | | | |
|--|-----------------------------|--------------|
| Marine Biological Laboratory | GIS Technician | 2012-present |
| Project with Dr. Anne Giblin: transform GIS metadata repository for Plum Island Ecosystem Long Term Ecological Research Site to comply with EML 2.1.1 standards, perform spatial analyses. | | |
| Project with Dr. Chris Neill: manipulate and reclassify publicly available GIS datasets, and scan and georectify paper maps of greater Boston Metropolitan Area for urban land use study. | | |
| Cornell University | Research Support Specialist | 2005-present |
| Project with Dr. Robert Howarth: Provide on-site coordination of multi-institution research on effects of nitrogen enrichment on coastal biogeochemistry. Coordinate and carry out field and laboratory analyses, maintain and analyze multiple ecological datasets, use GIS and spatial statistics to analyze spatial data, and prepare publications. | | |
| Germano & Associates | GIS Consultant | 2012-present |
| CR Environmental | GIS Consultant | 2008-present |
| Perform spatial analysis, data analysis and management, and map production for varied projects. | | |
| Cornell University | Laboratory Technician | 2001-2005 |
| Project with Dr. Barbara Bedford: collected and analyzed data from multiple field sites, ran statistics and spatial analyses using GIS, and coordinated results and analysis for work on biologically rich fens. | | |
| National Park Service | Ponds Technician GS/04 | 2001 |
| Collected and analyzed data as part of a long term monitoring project of kettle ponds on Cape Cod: maintained database, ran statistics, plotted spatial data in GIS, and aided in analysis for publication. | | |
| PCShop Computer Center | Technical Support | 2001-2002 |

Assisted with summer course teaching ESRI's ArcView 3.2 to college students. Developed a high school curriculum and implemented pilot program.

TECHNICAL SKILLS

- Data analysis using MS Office Suite
- Statistical and geospatial analysis using R, S-Plus, and ArcGIS
- Custom script generation in R
- ArcGIS 8.x through 10.1 spatial analysis and datalayer creation
- Web coding: HTML, XML, CSS, PHP
- Metadata maintenance including EML compliance
- Laboratory analyses using wet chemistry and instrumental methods
- Field preparation and collection of water, sediments, acoustic data
- Field instrument usage and maintenance

TECHNICAL COURSES

- 2013 ESRI: Basics of Python (for ArcGIS 10)
- 2012 Johns Hopkins University: Computing for Data Analysis in R
- 2010 ESRI: Creating and Integrating Data for Natural Resource Applications
- 2009 ESRI: Creating and Editing Labels and Annotation
- 2008 ESRI: Learning ArcGIS Spatial Analyst
ESRI: Working with Rasters in ArcGIS Desktop
ESRI: Introduction to ArcGIS 9 Geostatistical Analyst
ESRI: Learning ArcGIS 3D Analyst
ESRI: Working with Map Topology in ArcGIS
- 2007 ESRI: Geoprocessing with ArcGIS Desktop
ESRI: Creating, Editing, and Managing Geodatabases for ArcGIS Desktop

RELEVANT COURSEWORK: CORNELL UNIVERSITY (2000-2008)

Advanced Principles of Biogeochemistry	Biological Statistics II
Spatial Statistics	Mathematical Modeling in Ecosystems
Spatial Modeling and Analysis with GIS	Engineering Math I, II, III, IV

PUBLICATIONS

Hayn, M., R.W. Howarth, R. Marino, N. Ganju, P. Berg, K.H. Foreman, A. Giblin, and K.J. McGlathery. Exchange of nitrogen and phosphorus between a shallow seagrass-dominated lagoon and coastal waters. *Estuaries and Coasts*. Special Issue: Drivers of change in shallow coastal waters. Status: Accepted.

Howarth, R.W., M. Hayn, K. Foreman, R. Marino, K.J. McGlathery, P. Berg, A. Giblin, and J. Walker. Metabolism of a nitrogen-enriched coastal marine lagoon during the summertime. *Biogeochemistry*. Status: Accepted.

Ganju, N.K., M. Hayn, S. Chen, R.W. Howarth, P.J. Dickhudt, A.L. Aretxabaleta, and R. Marino. 2012. Tidal and groundwater fluxes to a shallow, microtidal estuary: Constraining inputs through field observations and hydrodynamic modeling. *Estuaries and Coasts*. 35(5): 1285-1298
http://water.usgs.gov/fluxes/publications/ganju_et_al_fluxes.pdf