



**KATY R. BECKHAM, M.S., GISP**  
GIS Analyst/Biologist

**Research Planning, Inc.**

Ms. Beckham specializes in the use of Geographical Information Systems (GIS) technologies for natural resource mapping, water quality improvement/watershed management, and other ecological projects. Since joining RPI in 2006, Ms. Beckham has served as a GIS Analyst, Biologist, QAQC Manager, and/or Database Manager in many types of projects, including: coastal resource mapping, natural resource mapping, natural resource damage assessments, alternative energy assessments, as well as provided GIS project support. Ms. Beckham has worked on projects that have highlighted not only her GIS capabilities but also her skills as a trained biologist. She has co-authored several technical publications and reports while at RPI and previously at Clemson University.

**EDUCATION**

M.S., Forestry & Natural Resources, Clemson University, Clemson, SC (2004). Thesis Title: Small Mammal-Forest Community Relationships of the Great Smoky Mountains National Park.

B.S., Aquaculture, Fisheries, & Wildlife Biology, Clemson University, Clemson, SC (2000)

**CERTIFICATIONS**

Certification as a GIS Professional (GISP), GIS Certification Institute (2015). Cert No. 90407

**HONORS**

National Science Foundation Fellowship, 2002; Xi Sigma Pi, 2004.

**PROFESSIONAL EXPERIENCE**

**2006 to present:** GIS Analyst/Biologist, Research Planning Inc., Columbia, S.C.

**2003 - 2006:** Ecological Services Manager/Biologist, Kubal-Furr & Associates, Simpsonville, S.C.

**2002 - 2003:** Graduate Research Assistant at Clemson University (NSF Fellowship)

Ms. Beckham’s experience is outlined separately on the following pages in four main areas:

- 1) ESI/Coastal Resource Mapping
- 2) Natural Resource Damage Assessments
- 3) Alternative Energy / Environmental Assessments
- 4) Natural Resource Mapping and GIS Project Support

**COASTAL RESOURCE MAPPING FOR OIL SPILL CONTINGENCY PLANNING AND RESPONSE**

GIS Analyst/QAQC Manager: Ms. Beckham served as GIS analyst and/or QAQC Manager on NOAA funded Environmental Sensitivity Index (ESI) Projects that collect, compile, and integrate ecological data for a region (habitats, wildlife, fisheries, endangered species, etc.) as well as human-use data, which are then showcased in a coastal atlas used for coastal zone management, contingency planning, ecological assessments, and many other natural resource applications.

They include:

Central California	2006
New York, Hudson River	2006

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Washington, Puget Sound & Strait of Juan de Fuca	2006
Alabama	2007
Maryland (2 volumes)	2007
Northern California	2008
Mississippi	2009
New York, Long Island Sound	2009
Southern California	2010
North Carolina (3 volumes)	2011
Florida Panhandle (added role of QAQC Manager)	2012
South Florida	2013
Texas, Upper Coast	2013
Louisiana	2013
Delaware Bay	2014
Mississippi River	2014
Washington/Oregon	2014
Georgia	2015
South Carolina	2015
Chesapeake Bay	2016
Southwest Florida	2016
Great Lakes Mackinaw Straits	2019
East Florida	2020
St Marys River	2021
St Lawrence River	2021
Florida Panhandle Update	2021
Texas ESI Update	2019-2022
Lake Erie System	2022

Her roles include: 1) Oblique photography interpretation and classification of shoreline; 2) Data acquisition; 3) Biological and Human-Use data digitization; 4) Digital data manipulation; and 5) QAQC review for data integrity as well as metadata production.

## NATURAL RESOURCE DAMAGE ASSESSMENTS

**GIS Analyst/Database Manager:** Ms. Beckham has served in GIS support roles for several natural resource damage assessments during her time at RPI. Those duties include(d): 1) Database Management; 2) QAQC; and 3) data compilation/digitization for shoreline oiling quantification procedures.

**2006: GIS Analyst. Bouchard 120 Spill Natural Resource Damage Assessment.** Ms. Beckham compiled data for digital quantitative analysis of shoreline oiling extent and impact.

**2007: GIS Analyst and biology project support. Obed Wild and Scenic River Natural Resource Damage Assessment.** Ms. Beckham compiled GIS data dictionary of relevant datasets to be used in environmental assessments.

**2007: GIS Analyst/Database QA. Citgo Natural Resource Damage Assessment.** Ms. Beckham performed QAQC on data from Shoreline Cleanup Assessment Team (SCAT) and created spatial files as part of the GIS component.

**2008: GIS Analyst. Cosco Busan Natural Resource Damage Assessment.** Ms. Beckham performed database and GIS file QAQC as well as providing data management.

**2008: GIS Analyst. Selendang Ayu Natural Resource Damage Assessment.** Ms. Beckham georeferenced shoreline oiling segments to high resolution mosaic imagery. These segments were derived from Shoreline Cleanup Assessment Team (SCAT) efforts subsequent to the 2004 oil spill in the Aleutian Islands of Alaska.

**2015-2016: Support Scientist. Deepwater Horizon Oil Spill NRDA Restoration Planning, Gulf-wide.** Ms. Beckham contributed to NOAA and DOI NRDA restoration planning efforts, particularly for NEPA compliance, with a support role in preparation of the *Deepwater Horizon* programmatic Biological Assessment and Biological Opinion addressing potential impacts of possible restoration projects on threatened and endangered species.

#### **ALTERNATIVE ENERGY / ENVIRONMENTAL ASSESSMENTS**

GIS Analyst/Biologist/Database Manager: Ms. Beckham has served in GIS support roles for several alternative energy/environmental assessments. Those duties include(d): 1) GIS Analyst; 2) Biologist; and 3) Database Management.

**2007: GIS Analyst and Biology support. Worldwide Synthesis and Analysis of Existing Information Regarding Environmental Effects of Alternative Energy Uses on the Outer Continental Shelf for the Minerals Management Service (MMS 2007-038).** Ms. Beckham's duties included: 1) organization of bibliographic annotations pertaining to the literature cited in the document; 2) cooperation with government and private organizations in efforts to obtain all research related to alternative energy, particularly from wind farms, with respect to sea turtles; and 3) compilation of a GIS data dictionary of all benthic spatial data.

**2007: Biologist. Critical Technical Review and Evaluation of MMS Site-Specific Study Techniques for the Minerals Management Service Marine Minerals Program (MMS 2007-047).** Ms. Beckham reviewed benthic studies to create a comparison schematic of benthic sampling methods.

**2009 – 2012: GIS Analyst and Database Manager. South Atlantic Information Resources: Data Search and Literature Synthesis for the Bureau of Ocean Energy Management, (BOEM 2013-01157).** Ms. Beckham supported the BOEM South Atlantic Synthesis by performing literature searches, creating an annotated bibliography complete with abstracts and keywords, serving as day-to-day management of requests from Principal Investigators from each subject area, and creating a spatial component with GIS technologies reflecting study areas from each piece of literature.

#### **NATURAL RESOURCE MAPPING AND PROJECT SUPPORT**

GIS Analyst/Biologist/Database Manager: Ms. Beckham has served as GIS analyst, Biologist, and/or Database Manager for several natural resource mapping projects as well as provided GIS support role for other projects RPI has completed.

**2006: Biologist. Department of Transportation's Research and Special Programs Administration's Best Management Practices Project.** Ms. Beckham evaluated and compiled threatened and endangered species range data and human interaction issues, as well as coordinated with the U.S. Fish and Wildlife Service on appropriate practices for species protection during pipeline repairs.

**2006: GIS Analyst. Petrobras.** Ms. Beckham converted GIS data from Portuguese to English and created a mapping project for display of the data.

**2006 – 2012: GIS Analyst. EPA and S.C. Department of Health and Environmental Control (DHEC) Non-Point Source Pollution Projects.** Ms. Beckham provided GIS project

support for 5 watersheds on the Impaired Waters and Total Maximum Daily Loads (TMDLs) Section 303(d) list of the Clean Water Act. In 2009, Ms. Beckham also performed an intensive GIS analysis of predictive factors related to pollution run-off in both agricultural and septic environments. The analysis was used to solicit participation in the cost-share program, in efforts to disseminate funds more effectively in the reduction of non-point source pollution.

**2007: GIS Analyst. Motley Rice.** Ms. Beckham created wind rose diagrams and maps for litigation support.

**2008: GIS Analyst. Jeddah Assessment project.** Ms. Beckham created renderings of a proposed monitoring system using three-dimensional GIS visualization software. Video animations were also created to allow the monitoring system to be viewed from all aspects.

**2008 – 2009: GIS Analyst. NOAA Gulf of Mexico Marine Debris Project.** Ms. Beckham performed routine updates to the Gulf of Mexico Marine Debris Program (GOMMDP) maps & Google Earth files. Cartographic products were created for placement on GOMMDP websites. This program, launched in August 2006 in response to the coastal impacts of Hurricanes Katrina and Rita, surveyed more than 1,500 square nautical miles of nearshore waters along the coast of Alabama, Mississippi, and Louisiana for potential marine debris objects.

**2009 – 2012: GIS Analyst. NOAA Arctic Initiative Project.** Ms. Beckham compiled data dictionary of pertinent GIS data as well as mapping projects to visualize arctic erosion characteristics in the study area.

**2010: GIS Analyst. Haiti Watershed Initiative (WINNER).** Ms. Beckham developed visualization tools in Google Earth for watershed project datasets as part of an initiative aimed at increasing agricultural productivity by making agricultural information more accessible.

**2010: GIS Analyst/Database Manager. Abu Dhabi Coastal Environmental Atlas.** Ms. Beckham populated and provided QAQC services of a non-spatial database as part of the Abu Dhabi Coastal Environmental Atlas.

**2017: GIS Analyst. Hurricanes Irma and Maria.** Ms. Beckham assisted with classification of marine debris to support removal efforts for NOAA and Coast Guard using high resolution aerial and satellite imagery.

**2017 – 2019: GIS Analyst. USDOT Pipeline and Hazardous Materials Safety Administration (PHMSA).** Ms. Beckham collected and analyzed state drinking water data ensuring consistency and completeness for inclusion in GIS models to create drinking water unusually sensitive areas (USAs) for the entire country in the event of a hazardous liquid pipeline accident.

**2017 – Present: GIS Analyst. Third Party Mid-Barataria Sediment Diversion EIS: Barataria and Lower Mississippi River Basins.** Ms. Beckham is responsible for data compilation, QAQC, GIS analysis and mapping support for numerous wetland and aquatic resources sections.

**2019: GIS Analyst/Biologist. Treasury RESTORE Act Best Available Science (BAS) review** for a marsh restoration project located in Southeastern United States. Ms. Beckham reviewed documentation to ensure consistency with current science methodology.

**2019 – 2020: GIS Analyst. Treasury RESTORE Act Environmental Compliance (EC) reviews** for coastal flood protection and related infrastructure. The project locations covered a wide range of coastal counties in TX including Aransas, Brazoria, Cameron, Galveston, Hidalgo, and Willacy. The projects were focused on coastal erosion control, flood control, habitat restoration, hydrologic restoration, shoreline stabilization, storm surge protection, and improvements to water quality through bulkhead repair, levee repair, groin rehabilitation, and/or waterway debris removal.

## SELECTED PUBLICATIONS

White, M., B. Thom, **K. Beckham**, A. Davis, and B. Benggio. 2021. Hurricane Response Storyboard and Metrics, Emergency Support Function (ESF) #10. Proc. 2021 International Oil Spill Conference, 10-14 May 2021, Virtual Conference.

**Beckham, K.R.**, C.L. Boring, and M. White. 2012. Turning analysis into action: Targeting likely sources of watershed impairment. *Arc User*. Spring 2012:16-19.

Reeves, W.K., L.A. Durden, C.M. Ritzi, **K.R. Beckham**, P.E. Super, and B.M. O'Connor. 2007. Ectoparasites and other symbiotic arthropods of vertebrates in the Great Smoky Mountains National Park, USA. *Zootaxa*. 1392:31-68.

**Riggins, K.D.** 2004. Small Mammal-Forest Community Relationships of the Great Smoky Mountains National Park [thesis]. Clemson University: Clemson (SC). 60pp. Available from: Clemson University Library, Clemson, SC.