

Lincoln B. Smith

Ecologist and GIS Analyst

Research Planning, Inc.

Mr. Smith specializes in natural resource mapping, ecological analysis, disaster response, and data management. Mr. Smith joined the RPI team in June of 2010, and has been a key contributor to the Mississippi Canyon 252 Oil Spill response, the Coastal Environmental Remediation and Restoration Program (CE-RPP) in Saudi Arabia, and ESI map production in two states.

As part of the MC252 response Mr. Smith primarily worked with the Shoreline Cleanup Assessment Technique (SCAT) team on GIS data management, database management, cartography, and data integrity. However, he also participated on SCAT teams characterizing oil conditions in the field. As part of RPI's CE-RRP team in Saudi Arabia, he assumed the role of data manager and field team lead, capturing and analyzing data during semiannual monitoring of restoration efforts. When back in the States, Mr. Smith continues to contribute to RPI's Environmental Sensitivity Index mapping, employing ArcGIS in the classification of shoreline in both S. Florida and Louisiana, as well as conducting aerial overflights to document changing shorelines.

EDUCATION

Master of Environmental Management, Ecosystem Science and Conservation, Duke University, Durham, NC (2009)

Master's Project: Modeling Land-Use in Georgia: Biodiversity Threats and Conservation Opportunities.

Bachelor of Arts, Biology, *magna cum laude*, Carleton College, Northfield, MN (2007)

Senior Thesis: Phytoremediation of Arsenic: Plant Mechanisms for Detoxifying and Sequestering As

PROFESSIONAL EXPERIENCE

2010 to Present: GIS Analyst and Ecologist, Research Planning, Inc., Columbia, SC

2010: Outreach and Stewardship Coordinator, Medomak Valley Land Trust, Waldoboro, ME

2008 to 2009: Geospatial Analyst, Dr. Jennifer Swenson's Lab, Duke University, Durham, NC

2008: GIS Analyst and Conservation Planner, Northeast Wilderness Trust, Boston, MA

2007 to 2008: Research Assistant, Dr. Ram Oren's Lab, Duke University, Durham, NC

DATA MANAGEMENT AND ANALYSIS**MC252 SCAT and Saudi Arabian CE-RRP Lead Data Manager:**

From March, 2011 to March, 2012, Mr. Smith served as one of three rotating data managers for all Shoreline Cleanup Assessment Technique (SCAT) team related data requests in Louisiana. He was responsible for assessing and approving data quality for all incoming raw and processed field data. This included managing up to three data handlers who processed and downloaded field data daily, in addition to tracking shoreline treatment recommendations in an Access database, and producing weekly deliverables describing clean-up progress and current oiling conditions. In his spare time, he provided additional support and products for the NOAA Federal SCAT Coordinator and the rest of the Louisiana SCAT unit as needed.

Starting in March 2012 and continuing through the present Mr. Smith has served as the primary data manager and analyst for a large-scale wetland restoration project along the Arabian Gulf, overseen by the UN Compensation Commission and the Saudi Arabian Presidency of Meteorology and Environment. During semiannual two month long field seasons he is responsible for the data integrity of all field data, and the maintenance of field data tools, including Trimble Yuma GPS units, cameras, and custom VBA software and Access databases. He has also provided analysis and data summarization for semiannual reports documenting the progress of restoration efforts and quantification of ecological response.

Before joining RPI, Mr. Smith had extensive training in data analysis and GIS while completing his Master's at Duke University. In addition to numerous classes, he gained hands-on experience working in Dr. Jennifer Swenson's lab. There he analyzed long-term spatial land cover data sets in Georgia, quantifying changes in land cover and carbon storage as a result of urban development. This work included managing and processing large datasets in ArcGIS and Erdas Imagine, and exporting them to test correlations and linear regression predictions using the R statistical package.

COASTAL RESOURCE MAPPING AND SHORELINE CLASSIFICATION FOR OIL SPILL CONTINGENCY AND RESPONSE

Environmental Sensitivity Index (ESI) Mapping and Shoreline Classification: Mr. Smith's involvement in oil spill contingency and response has come as a contributor to RPI's Environmental Sensitivity Indices (ESI) for S. Florida and Louisiana. For the S. Florida ESI he was trained for two separate tasks. The first was the capture of oblique aerial photography to document shoreline changes and habitat types along the coast with the aide of the coast guard reserve. These photos were subsequently processed and integrated with satellite imagery in order to classify coastal shorelines according to the sensitivity classes developed by RPI. As his second task, he was included as one of three GIS analysts responsible for classifying all shores contained in the S. Florida ESI.

For the Louisiana ESI he assumed the responsibility of organizing aerial photography missions in Louisiana with the USCG reserves over a five-day period. This was completed successfully in the winter of 2012. He also worked closely with multiple large datasets in ArcGIS to aide in the creation of polylines and polygons that would serve as the structure for mapping coastal habitats and shoreline morphology; this structure is necessary for ESI classification and integration with the biological databases created by RPI ecologists. He was the primary analyst categorizing shoreline habitat using oblique and satellite imagery.

FIELD DATA COLLECTION AND PROCESSING

Mr. Smith has participated as one of two primary field leads during three field seasons in Saudi Arabia working on the Coastal Environmental Remediation and Restoration Program. His team was charged with collecting all spring and fall field data for a long-term monitoring program at over twenty distinct wetland and sand flat restoration sites along the Arabian Gulf. Data collection included assessments of flora and fauna abundances, extraction of benthic infauna and oil samples, and measurement of physical variables at remote sites under extreme temperatures and in difficult environments.

In addition to his duties as a data manager during the MC252 spill in Louisiana, Mr. Smith also served as a Federal representative for the National Oceanic and Atmospheric Administration on SCAT teams that assessed oiling conditions in marsh and beach habitats across the response area. This involved long days in the field taking detailed notes on oiling conditions and extents, as well as assisting in the preparation of official oiling reports and clean-up recommendations.

While a graduate student at Duke University, Mr. Smith was a member of Dr. Ram Oren's lab. There he collected and analyzed litter samples from the Free Air CO₂ Enrichment (FACE) site in Duke Forest. Samples were identified and sorted as part of ongoing research into the effects of elevated CO₂ on plant production.

ADDITIONAL PROJECTS

Mr. Smith was one of two managers of a reference database cataloging citations for three chapters of the South Atlantic Literature Synthesis (Physical, Geological, and Chemical Oceanography). He conducted literature searches, compiled citations, and composed abstracts and keywords. He was responsible for quality control on all parts of one of the databases, and created spatial extents to represent study areas of literature cited.