



Mark A. White

GIS Manager/Senior Analyst

Research Planning, Inc.

Mr. White is a Geographic Information Systems (GIS) Analyst specializing in geospatial applications and techniques for natural resource and land use land cover mapping, ecological analysis, damage assessment, watershed management, and oil spill planning and response. Mr. White is experienced in geospatial vector data development, using multi-spectral satellite imagery for habitat, and vegetation mapping projects. He served as a member of the Shoreline Cleanup Assessment Technique (SCAT) team for the Mississippi Canyon 252/Deepwater Horizon spill, conducted natural resources damage assessment fieldwork for the *Exxon Valdez* Lingering Oil Survey, and the Chalk Point oil spill marsh impacts survey.

As a member of the RPI technical team for more than 20 years, he is the Manager of Research Planning, Inc.'s GIS department and heads the MC252 Deepwater Horizon SCAT Data Management Team. He possesses extensive experience in project management, personnel allocation, budgeting and budget tracking, and client/stakeholder interactions. He is experienced in Arc/Info, ArcGIS, Microsoft Access, and Microsoft SQL Server for design and structural relationships with various GIS data. His responsibilities at RPI include overseeing the Environmental Sensitivity Index (ESI) mapping program. Mr. White has managed or participated in the development and publishing of more than 50 ESI atlases and digital data sets. He has co-authored several technical publications and reports while at RPI.

EDUCATION

B.A., Geography, University of South Carolina (USC), Columbia (1992).

Concentration in Geographic Information Systems (GIS) and

Cognate: Business Administration, Management

PROFESSIONAL CERTIFICATION AND TRAINING

Certification: Certified Geographic Information Systems Professional (GISP) by the Geographic Information Systems Certification Institute (2009).

Training: National Incident Management System (NIMS), Incident Command System (ICS)

IS-00100.a – ICS 100

IS-00200.a – ICS 200

IS-00700.a – ICS 700

PROFESSIONAL EXPERIENCE

1999 to Present: Manager, GIS Program, Research Planning, Inc., Columbia, SC

1995 to 1999: GIS Analyst/Project Coordinator, Research Planning, Inc., Columbia, SC. Duties include GIS project administration including methodology development, budget analysis, technical implementation strategies, data development/creation, data /spatial analysis and interpretation, data entry and management, and product delivery including atlas, metadata, digital GIS and relational data.

1992 to 1995: Research GIS Technician, Research Planning, Inc., Columbia, SC. Assisted in the design and creation of relational database structure for use with environmental sensitivity index maps, as well as with the data entry and editing process of the ESI maps

1991 to 1992: Research Assistant, Humanities and Social Sciences Computing Laboratory, University of South Carolina, Columbia, SC. under Dr. David Cowen and Lynn Shirley. Assisted the GIS manager in database and application development for a Savannah River Site land use development project.

Mr. White's experience is outlined separately on the following pages in four main areas:

- 1) Coastal Resource Mapping/ESI
- 2) Oil and Hazardous Material Spill Response/Assessment
- 3) Alternative Energy / Environmental Assessments
- 4) Watershed Restoration

COASTAL RESOURCE MAPPING FOR OIL SPILL CONTINGENCY PLANNING AND RESPONSE

Environmental Sensitivity Index (ESI) Mapping: Mr. White served as the project lead and/or data analyst on the following ESI Projects used for coastal zone management, contingency planning, and hazardous material/natural disaster responses:

Lake Superior	1993
Western Lake Michigan	1993
California (Northern)	1994
California (Central)	1994
Northern Lake Michigan	1994
Southern Lake Michigan	1994
California (Southern)	1995
Florida (6 atlases)	1995-1997
Massachusetts	1999
El Salvador (2 volumes)	1999
Alaska (North Slope)	1999
Alaska (Prince William Sound)	2000
Gaza Strip	2000
Alaska (Southeast)	2001
Connecticut	2001
Hawaii including NWHI (2 volumes)	2001
Northwest Arctic, Alaska	2002
Honduras, Caribbean Coast (2 volumes)	2002
Western Alaska	2003
American Samoa	2003
Bristol Bay, Alaska	2004
Columbia River, Ore./Wash.	2004
North Slope/Chukchi Sea, Alaska	2005
Guam & Northern Mariana Islands (CNMI)	2005
Virginia (2 volumes)	2005
Panama, Panama Canal	2005
Central California and MBNMS	2006
Alabama	2007
Maryland (2 volumes)	2007
Northern California	2008
Southern California	2010
North Carolina (3 volumes)	2011
Florida Panhandle	2012
South Florida	2013
Texas, Upper Coast	2013
Louisiana	2013

Delaware Bay 2014
Washington and Oregon Outer Coast 2014
Plus many other domestic and international ESI atlases (more than 50 atlases and data sets published).

His role as project lead requires organizing and managing a multi-disciplinary team consisting of coastal geomorphologists, ecologists, GIS personnel, and cartographers. He assists with project logistics including the ESI classification overflight coordination with the USCG as well as the biological and human-use data collection meetings. Because he is intimate familiarity with the ESI guidelines and mapping protocol including the database structure and requirements, he oversees the creation of the final ESI atlas and digital data sets.

As a data analyst, his responsibilities include project and technical administration, geospatial analysis, data interpretation, development, and creation, and metadata development while working closely with the ESI project's geomorphologists and biologists. His has extensive experience with national and state natural resource databases used in the development of ESI maps and digital data which is a core product for NOAA's Emergency Response Division (ERD).

OIL AND HAZARDOUS MATERIALS SPILL RESPONSE/ASSESSMENT

Emergency Response: Mr. White has been part of the National Oceanic and Atmospheric Administration (NOAA), Emergency Response Division (ERD) SCAT Data Management team since 2007 providing on-scene and back-off support to spill responders and Unified Command for oil and chemical spills. He has produced numerous products and managed databases used for oil characterization, SCAT team tasking, operational activities, and spill response process tracking. He also provides back-off support for natural resource damage assessments (NRDA) projects related to natural disasters (e.g., hurricanes Katrina and Sandy) and oil and chemical spills for the Assessment and Restoration Division (ARD).

He provided on-scene support for the Emergency Response and Assessment and Restoration Divisions of NOAA, including:

- 2012 Motiva Oil Spill, Arthur Kill, New York – New Jersey: Back-off desktop analysis of the extent and degree of shoreline and marsh oiling using ArcGIS. Used available National Geodetic Survey (NGS) vertical photography to identify the extent of visible sheen on the water. Oiling statistics were calculated by oil degree and habitat type.
- 2010 *Deepwater Horizon*: NOAA SCAT Data Manager for Louisiana responsible for all SCAT data management including data team scheduling and oversight, SCAT shoreline oiling form QA/QC, production of oiling maps, special requests, and tabular summaries, created the required documentation for Unified Command review and signoff, and generated the weekly SCAT summaries.
- 2010 Haiti Watershed Initiative for the National Natural Environmental Resources (WINNER), Port Au Prince, Haiti: After the devastating earthquake in January 2010, Mr. White and the GIS team produced maps and distributed geospatial data to numerous local, federal, and international governmental emergency response organizations as well as non- governmental emergency responders. The geospatial data made available to the emergency responders was collected from the Interministerial Committee for Territorial Planning (CIAT) and the National Center for Geospatial Information (CNIGS) as part of the WINNER project.
- 2007 Bayou Perot, Louisiana: Back-off support. Developed oil type classification and volume estimation of spilled oil using digital aerial photography and ArcGIS for on-scene management.

Long-term Monitoring:

- 2010 *Exxon Valdez* Bioremediation Surveys, Prince William Sound, Alaska: As a follow-up the 2007 Lingering Oil surveys, he instructed scientists and Ph.D graduate students from the Center for Natural Resources Development and Protection, Department of Civil & Environmental Engineering, Temple University in the survey methods and protocols used during the 2007 surveys. The protocols required identifying locations of potentially buried oil based on sediment type, exposure, and overburden armoring. The team was required to capture detailed subsurface oiling pit descriptions, detailed site sketches, and GPS and photo data. He developed the data structure and data management parameters for the field team.
- 2007 Chalk Point Oil Spill Marsh Impacts Survey, Patuxent River, Maryland: Mr. White was a field team member that collected vegetation condition measurements of belowground biomass, stem density, and stem height for *S. alterniflora* and *S. cynosuroides*. He assisted in writing the technical report following the survey.
- 2007 *Exxon Valdez* Lingering Oil Surveys, Prince William Sound, Alaska: Mr. White was a team lead in a 3 month field effort to survey 150 randomly selected site in Prince William Sound and the Gulf of Alaska to determine the extent of sub-surface oiling based on geomorphology, exposure, and several other factors. The data were used to validate and further develop the ArcGIS Lingering Oil statistical model.

Assessment:

- 2004 Buzzards Bay Inlet Protection Strategies, Buzzards Bay, Massachusetts: Data collection, compilation, and creation for development of digital inlet protection strategies using ArcGIS for the Buzzards Bay Geographic Response Plan.
- 2003 Florida Power and Light (FPL), Florida: Conduct geospatial analysis of FPL's hazardous liquid pipelines that intersect with High Consequence Areas (HCA) for the FPL's Integrity Management Program. The final data were also uploaded to the National Pipeline Mapping System.
- 2002 NOAA - Louisiana Coastal Risk Assessment: Oil and Gas Infrastructure and Coastal Land Loss Risk Assessment for Louisiana. Data collection, compilation, and creation used to develop spatial risk analysis and software tools to assess risks to coastal oil and gas infrastructure in Louisiana from coastal land.
- 1999 Department of Transportation, Office of Pipeline Safety, Unusually Sensitive Areas, USA: This nationwide project consisted of managing large complex biology, geology, aquifers, sub-surface and surface water drinking data sets as well as a the national liquid pipeline infrastructure data set. A complex GIS model was developed to analyze and identify drinking water resources sensitive to liquid petroleum pipeline spills.

ENVIRONMENTAL IMPACT STATEMENTS / ENVIRONMENTAL ASSESSMENTS

South Atlantic Literature Synthesis: In 2011, Mr. White coordinated the conversion of a personal geodatabase to ArcInfo coverage export files for delivery to Bureau of Ocean Energy Management (BOEM) for importing into the Technical Information Management System (TIMs), Coastal and Ocean Resource Information System (CORIS) database.

Synthesis of Worldwide Literature on Alternative Energy: In 2007, Mr. White worked with a team Analyst to develop a GIS data dictionary and geospatial mapping parameters for avifauna, sea turtles, benthic habitats, and other spatial data layers affected particularly by wind farms for the Minerals Management Service (MMS).

SIEPAC Electric Corridor EIS, Costa Rica: In 1997, Mr. White assisted in the environmental impact modeling, remote sensing, and geospatial analysis using satellite imagery and other available GIS data layers for an electrical transmission system routing corridor aimed at limiting the environmental and social impacts from construction as well as satisfying environmental licensing requirements.

WATERSHED RESTORATION

Haiti Watershed Initiative for the National Natural Environmental Resources (WINNER), Port Au Prince, Haiti: 2009-2013: Mr. White acted as the US based Project Coordinator. He worked remotely with the Haitian National GIS staff instructing and conducting geospatial analysis and remote sensing projects to produce maps (historic flooding, geology, slope, population density, socio-economic and others), watershed management plans, and land use land cover products and data. He was responsible for the overall geospatial data and database management. His team worked closely with the Inter-ministerial Committee for Territorial Planning (CIAT) and the National Center for Geospatial Information (CNIGS) collecting and cataloging a significant portion of the geospatial holdings from each organization.

SELECTED PUBLICATIONS

- Michel, J., E. Owens, S. Zengel, A. Graham, Z. Nixon, T. Allard, W. Holton, D. Reimer, A. Lamarche, M. White, N. Rutherford, C. Childs, G. Mauseth, G. Challenger, and E. Taylor. 2013. Extent and Degree of Shoreline Oiling: *Deepwater Horizon* Oil Spill, Gulf of Mexico, USA. PLOS One Journal, Manuscript Number: PONE-D-12-39846R2. 19 pp. + figures.
- 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.
- Michel, J., Z. Nixon, J. Dahlin, D. Betenbaugh, M. White, D. Burton, and S. Turley. 2009. Recovery of interior brackish marshes seven years after the Chalk Point oil spill. *Marine Pollution Bull.* 58:995-1006.
- Michel, J., Z. Nixon, J. Dahlin, D. Betenbaugh, M. White, D. Burton, and S. Turley. 2008. Monitoring of Recovery of Marshes Impacted by the Chalk Point Oil Spill. NOAA Office of Response & Restoration, Silver Spring, MD. 68 pp. + appendices.
- Locke, C., M. White, J. Michel, C. Henry, J.D. Sellars, and M. L. Aslaksen, Jr. 2008. Use of Vertical Digital Photography at the Bayou Perot, LA Spill for Oil Mapping and Volume Estimation. Proc. 2008 International Oil Spill Conference, May 5-7 2008, Savannah, GA.
- Plank, C., W.T. Holton, M. White, J. Michel, C. Sherman, I. Csato, and C. Sames, 2003. Nation-wide assessment and mapping of drinking water “Unusually Sensitive Areas” (USAs). Proc. 2003 International Oil Spill Conference, American Petroleum Institute Publ. No. 14730 A (CD-ROM).
- Petersen, J., J. Michel, M. White, S. Zengel, C. Lord, and, C. Plank, 2002. Environmental Sensitivity Index Guidelines, Version 3.0: Prepared for the Hazardous Materials Response and Assessment Division, NOAA, Seattle, Wash., NOAA Tech. Memo. NOS OR&R 11, 89 pp. + app
- Zengel, S., M.O. Hayes, J. Michel, M. White, B. Benggio, F. Lopez, E. Mosher, S. Touw, 2001, Integrated planning from the mountains to the sea: environmental sensitivity mapping in the Puerto Rico. Proceedings of the 2001 International Oil Spill Conference , American Petroleum Institute, Washington, D.C.
- Zengel, S., M. Hayes, J. Michel, and M. White, 2000, Integrated Planning from the Mountains to the Sea: Environmental Sensitivity Mapping in the Caribbean. Proceedings of the 2001 International Oil Spill Conference , American Petroleum Institute, Washington, D.C.
- Zengel, S., J. Halls, W. Holton, and M. White, 1999, Environmental Sensitivity Index (ESI) Mapping and GIS Products: Tools for Coastal Zone Management. 1999 Coastal GeoTools Conference, NOAA Coastal Services Center, Charleston, SC.

-
- White, M. and K. Hastings, 1997, Effective management of GIS projects using quality control and quality assurance standards. Environmental Systems Research Institute Conference, 8-11 July 1997, San Diego, CA.
- Zengel, S., A. Meylan, H. Norris, M. White, L. Diveley, W. Holton, and K. Moody, 1996, Mapping sensitive sea turtle areas in Florida for oil spill response and natural resources management (abstract). 16th Annual Symposium on Sea Turtle Biology and Conservation, Hilton Head Island, SC.
- Zengel, S., L. Diveley, M. White, W. Holton, and A. Meylan, 1995, Collection and compilation of biological data during Environmental Sensitivity Index (ESI) mapping. Invited Presentation, Annual Meeting of the Florida Region of the American Society of Photogrammetry and Remote Sensing (ASPRS), 25-26 September 1995, Tampa, FL.