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Matthew J. Mayo, M.S., GISP, CPG, P.G.

Senior GIS/Environmental Scientist

Mr. Mayo is a Certified Geographic Information Systems (GIS) Professional and Licensed Professional Geoscientist with 23 years of experience in applying innovative spatial analytical and environmental data management and visualization techniques to projects related to contaminant fate, transport, and exposure; land cover and land use analysis; complex permitting; and hydrogeologic assessment. He advises clients on numerous issues, including potentially responsible party (PRP) identification, contaminant pathway evaluation, and surface and subsurface contaminant migration. His expertise in interpretation and analysis of aerial and satellite imagery helps provide an understanding of the timing and extent of contaminant impact and exposure.

Mr. Mayo has also provided consulting support for technical and regulatory issues involving wastewater disposal, stormwater management, environmental compliance, public water supply, and land redevelopment and asset management. In addition to consulting, he has taught several courses in geoscience and GIS for universities, professional programs, and nonprofit organizations.

Areas of Expertise

- Imagery-Based Land Use/Land Cover Analysis
- GIS Project Management & Best Practices
- Web-Based GIS Mapping & Analysis Applications
- Geospatial Data Acquisition & Visualization
- 2D & 3D Geospatial Modeling
- Hydrogeology
- Database Construction & Management

Services

- PRP Cost Recovery/Allocation
- Historical Site Analysis
- Data Acquisition & Visualization
- Spatial & Imagery Analyses
- Database Development
- Climate Science

Education

- M.S., Geology, Boston College
- B.A., Geology, Hartwick College
- Graduate Certificate, Remote Sensing, Northeastern University
- US Geospatial Intelligence Foundation Certified Training
- Certified GIS Professional
- Certified Professional Geologist, AIPG
- Licensed Professional Geoscientist, Louisiana

Selected Projects

Land Cover Classification Modeling: Performed imagery analysis to quantify differences in land cover among individual properties for an area consisting of several thousand parcels. Analysis was performed in the context of evaluating the variability of exposure to chemicals in the environment.

Analysis to Identify the Types and Extents of Different Land Cover Types to Support a Conceptual Site Model: Conducted a land cover analysis based on historical and contemporary aerial photographs, historical maps, and environmental investigations of the site to quantify the extent of impervious and pervious cover on the operational areas of the site through time. The findings of the analysis were used to support the development of a conceptual site model and selection of a proposed remedy.

Technical Evaluation to Determine Jurisdictional Status Under the Navigable Waters Protection Rule, Definition of "Waters of the United States": Applied a holistic weight-of-evidence approach relying on historical and contemporary aerial photography; property surveys and field data; regulatory documents; and local, regional, and national GIS data to determine the jurisdictional status of several surface water features on and in the vicinity of the site. The results of the analysis helped the landowners make decisions about the future use of their land.

Development of a GIS database and WebGIS application to Evaluate and Visualize Environmental Data: Constructed a comprehensive GIS database comprised of locations of facilities and other regulated sites from national and statewide data repositories to support large-scale research efforts to identify potential sources of contamination. The GIS was used to create dynamic visuals and web-based mapping applications to allow collaboration between project team members and to help analyze data accurately and efficiently on a local and national scale.

Aerial Imagery and LiDAR Data Analysis: Reviewed and analyzed historical aerial photographs and topographic information to evaluate the landform and land cover changes that occurred on and in the vicinity of a site from the 1930s to the early 2000s. Provided expert opinions in the context of a Clean Water Act litigation.

Selected Publications and Presentations

Mayo, MJ; Marsh, CM. 2019. "Assessing Exposure Using an Image-based Land Cover Classification Model." Presented at the Society for Risk Analysis Annual Meeting, Arlington, VA, December 11.

Handler, JI; Gutierrez, SR; **Mayo, MJ;** Pollock, MC. 2018. "GIS for environmental litigation." *Bloomberg Environmental and Energy News.* September 18.

Mayo, MJ; Ikeda, S; Briggs, N; Petito Boyce, C; Mayfield, D. 2017. "Using GIS Data and Tools to Assess the Vulnerability of Industrial Facilities and Natural Resources to Flooding Events." Presented at the Society for Risk Analysis Annual Meeting, Arlington, VA, December 12.