PHIL BAMBACH, M.S., P.G. **Research Planning, Inc.**
Professional Geologist

Mr. Bambach is a professional geologist with eight years of professional experience in groundwater assessment, petroleum cleanup, sediment core analysis, marine, coastal, aquatic, and terrestrial natural resource management and policy. Mr. Bambach's specialty areas include site assessment reports and remedial action plans, supervision of drilling operations for ground water monitoring wells, description of sediment cores, interpretation of geophysical logs, and a wide range of field data collection methods. He is an effective communicator with excellent planning, organizational, and negotiation skills, as well as the ability to lead, reach consensus, establish goals, and attain results.

EDUCATION

M.S., Geology, Florida State University, Tallahassee, FL (2013)

B.S., Geology and Geography, Wittenberg University, Springfield, OH (2011)

CERTIFICATIONS

Professional Geologist (Florida) #3024
24-Hour HAZWOPER
Remote Drone Pilot Certification
SCAT Shoreline Assessment
PADI scuba open water certification
Florida Boaters License

SKILLS

Software and Hardware - ArcGIS, Drone pilot software, Trimble Total Station.

Field - Electrical resistivity ground imaging equipment; direct push, hollow stem auger, clam shell (offshore) and sonic coring techniques; Geophysical logging techniques; FID, YSI water quality meters.

PROFESSIONAL EXPERIENCE

Professional Geologist, Research Planning, Inc., Columbia, SC (2018 - present)
Geologist II, Wood, Tallahassee, FL (2016 - 2018)
Geologist II, Florida Geological Survey, Tallahassee, FL (2014 - 2016)
Sediment Specialist, Florida State Antarctic Research Facility, Tallahassee, FL (2013)
Hydrologist Assistant, USGS Ohio Water Science Center, Columbus, OH (2010 - 2012)

PROJECT EXPERIENCE

Groundwater Assessments As part of Wood, Mr. Bambach conducted groundwater assessments throughout Florida that involved installation of groundwater monitoring wells, water sampling, and geophysical log analysis for projects related to the Florida Petroleum Cleanup Program. Specifically, he worked on projects involving the Abandoned Tank Restoration Program (ATRP), Petroleum Cleanup Participation Program (PCPP), Free Product Recovery Initiative (FPRI), and the Springshed Initiative.

Sediment and Soil Assessments As part of Wood, Mr. Bambach conducted sediment and soil assessments throughout Florida that involved soil screening with a Flame Ionizing Detector (FID), soil sampling, and excavations of contaminated soil for projects related to the Florida Petroleum Cleanup Program. Specifically, Mr. Bambach predominantly worked on projects involving the Navy Fuel Depot in Jacksonville, Florida.

RESTORE Act Scientific and Technical and Environmental Compliance Reviews Under contract with the Office of Gulf Coast Restoration, U.S. Dept. of Treasury, Mr. Bambach serves as a technical reviewer for Restore Act projects involving infrastructure upgrades, water quality improvement, as well as beach, dune, marsh, tidal flat, and estuary restoration in coastal settings across the Gulf Coast region.

Environmental Sensitivity Index (ESI) and Resource Mapping Under contract with NOAA, Mr. Bambach classifies shorelines according to their physical characteristics which then dictates the proper cleanup technique in the event of an oil spill. Datasets are then compiled into a GIS database for integration into analytical products and the generation of static maps and tabular data for the ESI atlas and accompanying relational databases.

Tidal Inlet Protection Strategies (TIPs) for the Florida Panhandle Under contract with the Florida Fish and Wildlife Commission, Mr. Bambach designed strategies that protect the resources inside the inlets of the Panhandle of Florida from oil that may enter from an offshore source. Tidal inlets, while among the most important areas to protect, are also some of the most difficult to effectively protect. These strategies will safeguard the area within the inlet crucial for both environmental and commercial purposes.

MFL Technical Support Services for the Northwest Florida and Suwannee River Water Management District Under contract with the Northwest Florida and Suwannee River water management district, Mr. Bambach provides technical analysis for the minimum flow and level (MFL) study which analyzes the effects of flow conditions on wetlands, floodplain habitats, and protected species of the Wakulla and St. Marks rivers to inform management decisions on water withdrawals. Mr. Bambach captains the boat and assists in collecting pH, conductivity, temperature, and depth to water along the rivers in the area as well as identity flora and fauna in the floodplain.

Office of Response and Restoration, U.S. National Oceanic and Atmospheric Administration (NOAA) Mr. Bambach has served NOAA for 2 years, providing scientific oil spill response, shoreline assessment, remediation, and restoration support to NOAA for marine oil spills, hazardous materials releases, natural disasters, marine debris events, and similar incidents. Mr. Bambach has primarily served as a Shoreline Cleanup and Assessment Team (SCAT) field scientist during oil spills and has also been involved with literature review and synthesis studies. His most recent experiences include debris mapping using drone technology along the Louisiana coast following Hurricane Laura; collecting coal ash samples off the coast of Jacksonville following the capsizing of Barge Bridgeport; and conducting oiled shoreline assessments along marshes, tidal flats, and sand beaches following the Golden Ray vessel grounding off the coast of Brunswick, Georgia.

Coastal Long-Term Monitoring Project, Arabian Gulf Coast, Saudi Arabia As part of RPI's long-term monitoring contract along the Arabian (Persian) Gulf coast of Saudi Arabia, Mr. Bambach executes field assessments to measure ecological health in intertidal habitats. As a geologist, he collects soil samples at each site to be tested for the presence of hydrocarbons, collects box cores at each site to determine fauna return rates, and performs analysis for reports.

Mangrove Transplantation Assessment and Pilot Planting Project (Saudi Arabia) As part of RPI's contract, an assessment of historic mangrove transplanting efforts was conducted. Optimal transplantation methods and proposed locations for new pilot planting efforts were determined. An intertidal mangrove nursery was established, and 35,000 mangrove seedlings were planted at various study sites.

A Response Guide for Sunken Oil Mats (SOMs) Under contract with the U.S. Department of Commerce, Mr. Bambach served as a technical lead for this literature compilation and synthesis for sunken oil mat formation, behavior, detection, and removal techniques. RPI created the response guide to provide active oil spill responders with conditions in which SOMs would form, the most effective technique in detecting them and most efficient means of removal in areas where SOMs form. This response guide can be used on spills of all sizes and in all locations around the world where oil has the potential to mix with sand and sink.

Drinking Water Unusually Sensitive Areas Under contract with the Pipelines and Hazardous Material Administration, Office of Pipeline Safety, he was responsible for developing the guidelines by which public water systems are assigned to the appropriate Pettyjohn classification using the GIS model developed by RPI. This work involves work with spatial and tabular data on bedrock geology, surficial geology, glacial drift, sole source aquifers, source water protection areas, and wellhead protection areas for each state.

Florida Geologic Survey STATEMAP Program For the Florida Geological Survey, Mr. Bambach established the geologic framework of areas vital to the welfare of Florida. Both bedrock and surficial geology were mapped during the process, analyzing cores and cuttings throughout the state of Florida. Mr. Bambach focused on areas surrounding St. Augustine, Orlando, and Jacksonville. These maps are used to assess water, aggregate, and mineral resources.

Surface Water Quality For the U.S. Geological Survey, this work involved water sampling of lakes, testing the turbidity as well as the density of ecoli and enterococci as part of the Inland Lakes Project, protocol for blue/green algae sampling and analysis, and data interpretation on water quality findings.

Dune and Shoreline Evolution of Western Santa Rosa Island, Florida, 1973-2013 Master's thesis project that used ground elevation profiles, airborne Lidar data, trapezoidal integration, and GIS analyses to quantify impacts of storms (including two hurricanes, Ivan and Opal) on foreshore, dune, and backshore components of a Florida barrier island.

Other Specific Skills

- Groundwater sampling in the shallow, intermediate, and deep wells and soiling sampling according to the state of Florida standard operating procedures.
- Extensive experience using engineering tools such as Flame Ionizing Detector for soil screening and YSI for groundwater sampling.
- Management of drilling subcontractors and following general well installation procedures.
- Management of construction subcontractors following contaminated soil excavation procedures.
- Writing different types of reports including site assessment reports, groundwater monitoring reports, remediation system installation reports and contaminated soil excavation reports.
- Description of sediment cores containing carbonate and siliclastic sedimentary rocks across the state of Florida
- ARC GIS to produce quadrangle surficial geologic maps of specific locations across Florida.
- AutoCAD to construct cross-section maps of the specific locations across Florida.
- Anaylsis of sediment cores obtained from Antarctica and surrounding waters, looked for evidence of climate change by examining foraminifera and diatoms. Used Petra to correlate cores.

List of Publications

Michel, J. and **P. Bambach**. 2020. A Response Guide for Sunken Oil Mats (SOMs): Formation, Behavior, Detection and Recovery. Journal of Marine Science and Engineering. 2022, 10(3), 368; https://doi.org/10.3390/jmse10030368.

Michel, J. and **P. Bambach**. 2020. A Response Guide for Sunken Oil Mats (SOMs): Formation, Behavior, Detection and Recovery. Office of Response and Restoration, National Oceanic and Atmospheric Administration, Seattle, WA. 42 pp.

Research Planning, Inc. 2019. Updating Drinking Water Data for Unusually Sensitive Areas: Standards and Best Practices. Prepared for: U.S Department of Transportation. Pipeline and Hazardous Material Safety Administration. Office of Pipeline Safety. Washington D.C.