

ENVIRONMENTAL and ECOLOGICAL ASSESSMENT

GBM^c & Associates provides environmental and ecological assessment services to clients to meet legal and regulatory requirements. Our vast experience in multi-media environmental management along with an applied science approach provides a strong product to our clients. Assessments often address issues related to historical impacts of industrial activities to natural resources, including, terrestrial wildlife, aquatic life in streams, lakes, and wetlands and risk to human health. Services include: Phase 1 environmental site assessments; ecological assessments; hazardous waste analysis; bioassessment; toxicity evaluation and analysis; evaluation of ecological risks; habitat evaluation and mapping; and wetland delineations. GBM^c & Associates maintains a wide range of field equipment required for comprehensive ecological field studies and has a written Quality Assurance Plan for such detailed studies.

Selected Experience and Capabilities

- Completed numerous Environmental Site Assessments (ESA) for industrial and municipal clients according to ASTM E 1527 standard practices. Assessments include a review of the sites' usage history, a visual reconnaissance of the site and structures, a visual review of adjacent property, review of state and federal agency database records and analysis of potential environmental hazards and risks.
- Completed numerous Environmental Assessments (EA) and Ecological Reviews for both industrial and municipal clients. Assessments have included, site reviews and reconnaissance, detailed habitat mapping, wetland delineation and threatened and endangered species analysis.
- Completed numerous ecological impact studies related to industrial spills, discharges, and hazardous waste disposal habits, to terrestrial and aquatic environments, including streams, lakes, estuaries, and wetlands.
- Completed several waste sampling and analysis projects (solid waste, sludge and sediment) following EPA SW-846 methodology to determine the presence or absence of hazardous and/or toxic chemical constituents on industrial sites.
- Developed numerous sampling and analysis plans (SAP) approved by regulatory agencies for the collection of solid, semi-solid and liquid wastes.
- Conducted field studies and fate and transport modeling to determine the effect of environmental chemicals and physical parameters on aquatic ecosystems. Parameters evaluated include, temperature, nutrients, dioxin, perchlorate and sediment.
- Completed multiple bioaccumulation studies for fate of toxic organic chemicals in fish flesh and aquatic sediments.



ENVIRONMENTAL & ECOLOGICAL ASSESSMENT (cont.)

- Designed and implemented qualitative and quantitative sampling and assessment programs for benthic and fish communities to monitor impact and/or recovery of pre and post project biological integrity on systems ranging from intermittent streams to the Arkansas River.
- Investigated and delineated the horizontal and vertical extent of contamination resulting from spilled industrial materials.
- Designed and implemented monitoring programs for zebra mussel infestations at a variety of facilities. Designed standard sampling procedures and implemented multi-year, long-term sampling programs to assess the effects of site remediation/clean-up on fish flesh contaminants.
- Completed dozens of wetland delineations using the 1987 U.S. Army Corps of Engineers (COE) Wetland Delineation methodologies in several USACE districts.



- Conducted data collection analyses and interpretation of aquatic and terrestrial habitat as a prerequisite to vegetation mapping, wildlife analysis and maintenance of biological integrity.



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