Effective Responses to Project Objector Claims (Newsletter)*

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Many natural resource industry projects have experienced frustration when opponents file administrative or legal objections based on speculation that environmental degradation will result if the permit is issued, and the proponent is asked by regulators to prove the claims are unfounded. While no one can prove a negative, we can demonstrate that claimed damage scenarios are highly unlikely. Refutation of objector claims uses data collected for baseline studies or monitoring of permit compliance in advanced statistical and spatial models. Results are technically sound and legally defensible. Operators increase the value from their investment in data collection and regulators gain confidence that permit issuance is appropriate and justified.

Real estate sellers provided the mantra that property value is based on three factors: location, location, and location. Environmental data have locations and temporal parameters associated with each observed and measured value. By fitting environmental data into appropriate spatial and time contexts we learn why such chemical or biological data were found where and when they were. This insight greatly increases the value of collected data and reduces challenges to the project and permit issuance.

Analyzing physical, chemical, and biological data using the appropriate statistical and spatial models addresses concerns of regulators and the public. Does an operating or proposed mine, timber harvest, hydroelectric dam, or cattle ranching operation change the natural dynamics and variability of water quality along streams and rivers? Do mining explorations or operations negatively impact hydrology, water quality, fish, or wildlife? Is a specific property prone to flooding in heavy storm events regardless of upstream activities? Can a functioning stream ecosystem be created during mine reclamation? What local factors influence the species and numbers of macroinvertebrates, fish, or wildlife observed at a given site? Can environmental aspects of industrial activities be quantified and separated from inherent natural variability?

There are two types of benefits provied by from advanced data analyses.

First, associations (correlations) between environmental constituents can be quantified and cause-and-effect relationships objectively measured. Is specific conductance (conductivity) a surrogate for total dissolved solids (TDS)? Correlation analysis determines if it is and the strength of that association. Do measurements of TDS indicate impairment of water for beneficial uses? Regression analyses will quantify what ions contribute most to measured TDS values.

Are there invertebrate, fish, or wildlife populations that might be affected by a project? Multiple regression (linear, additive, logistic, mixed effects) can determine which potential environmental explanatory variables (location, slope, temperature, water chemistry, etc.) best explain the response variable of population size, species richness, or other biotic variable of interest. Equally important, when the whole regression model is non-significant, explanatory variables can be examined separately and in groups to determine if any one or more (or interactions among them) explain the biotic response variable. Results produce better informed project planning, operation, and regulatory decision making.

The second benefit is fulfilling the NEPA and other environmental assessment requirements of taking a "hard look" at the project and potential undesired environmental impacts. The mathematics of statistical and spatial modeling are well established and clear, effective explanation of the results to non-technical decision-makers provide that "hard look" with technical soundness and legal defensibility. Advanced data analyses using objective statistical and spatial models can be used both pre-emptively and in reaction to subjective claims of harm. Such analyses convert the cost of data collection to an investment.